



NEXT TO SAFETY ITSELF, YOUR MOST
IMPORTANT CONCERN SHOULD BE
THE PRODUCTS THAT PROVIDE IT.

Single Gas Monitors

Multi-Gas Monitors

Docking Stations

Calibration Gases and Regulators

Fixed Point Detection Systems

Air Purifying Systems

Biosystems | 2006 PRODUCT GUIDE



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WARNING

This document provides only an overview of the Biosystem products shown. It does not provide important product warnings and instructions. Biosystems recommends all users of gas detection equipment undergo thorough training and that all warnings and instructions provided with the products be thoroughly read and understood prior to use. Failure to read and follow all product warnings and instructions may result in serious personal injury, illness or death.

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Bacou-Dalloz Hong Kong Ltd.
Tel: +852 2707 0922
Fax: +852 2707 0932
Email: Asia@bacou-dalloz.com

Biosystems Standard Warranty

Gas Detection Products

Limited Warranty

Biosystems warrants that its products are free from defects in material and workmanship. A product that is the subject of a warranty claim must be returned to Biosystems at its manufacturing location in Middletown, Connecticut. All warranty returns must be shipped pre-paid.

Biosystems will then determine whether repair or replacement of the product is the appropriate remedy. This will be done at no charge to the end user. A return authorization number must be obtained from Biosystems prior to shipment.

This limited warranty does not cover any product or component found by Biosystems to have been altered, misused, abused, tampered with or improperly maintained or to have deteriorated due to aging of any component made of rubber or any other elastomer.

This limited warranty does not cover any damage, loss or expense due to damage caused by accident, abuse, improper maintenance, use or misuse of the product.

This warranty is expressly in lieu of any and all other warranties and representations, express or implied, including but not limited to, the warranty of fitness for a particular purpose. Biosystems will not be liable for loss or damage of any kind connected to the use of its products or failure of its products to function or operate properly.

Table of Contents

ToxiLtd / ToxiPro Single Sensor Gas Detectors	1
Toxi Vision Single Sensor Gas Detectors	4
Mighty-Tox 90-Day Disposable Single Sensor Gas Detectors	7
MultiPro Multi-Gas Detectors	8
MultiVision Multi-Gas Detectors	10
PhD Lite Multi-Gas Detectors	13
PhD⁵ Multi-Gas Detectors	17
Cannonball³ Continuous Sample Draw Multi-Gas Detectors	23
IQ Express Docking Station	28
MultiPro IQ Express Docking Station	29
IQ Docking Station	30
IQ Datalink System	31
Calibration Gases, Regulators and Replacement Sensors	32
ZoneGuard Fixed Point Gas Detection Systems	34
Travelpanel and Airpanel 50 Air Purification Systems	36
Sample Probe Assemblies and Components	38
PosiChek³ SCBA Performance Tester	40
Biosystems Standard Warranty Gas Detection Products	41

Instrument and Accessory Warranty Periods

PRODUCT(S) / WARRANTY PERIOD
PhD⁵, PhD Lite, PhD Plus, PhD Ultra, Cannonball³, MultiVision, Toxi, Toxi/Oxy Plus, Toxi/Oxy Ultra, Toxi Vision, and Ex Chek. As long as the instrument is in service.
ToxiPro/OxyPro and MultiPro 2 years from date of purchase.
ToxiLtd 2 years after activation or 2 years after the "Must Be Activated By" date, whichever comes first.
Mighty-Tox 90 days after activation or 90 days after the "Must Be Activated By" date, whichever comes first.
Mighty-Tox 2 Prorated credit is given towards repair or purchase of a new unit of the same type. 0 – 6 months of use: 100% credit 6 – 12 months of use: 75% credit 12 – 18 months of use: 50% credit 18 – 24 months of use: 25% credit
IQ Systems, Series 3000, Airpanel, Travelpanel, ZoneGuard, Gas Chek¹, Gas Chek⁴ and Gas Chek. One year from the date of purchase.
Battery packs and chargers, sampling pumps, and other components , which by their design are consumed or depleted during normal operation, or which may require periodic replacement. One year from the date of purchase.

Sensor Warranty Periods

INSTRUMENT(S) / SENSOR TYPE	WARRANTY PERIOD
PhD Plus, PhD Ultra, PhD⁵, PhD Lite, Cannonball³, MultiVision, MultiPro, Toxi Vision, ToxiPro and Ex Chek O ₂ , LEL**, CO, CO+, H ₂ S and Duo-Tox	2 Years
All Other Sensors	1 Year
Toxi, Toxi/Oxy Plus and Toxi/Oxy Ultra CO, CO+, H ₂ S	2 Years
All Other Sensors	1 Year
All Others All Sensors	1 Year

**Damage to combustible gas sensors by acute or chronic exposure to known sensor poisons such as volatile lead (aviation gasoline additive), hydride gases such as phosphine, and volatile silicone gases emitted from silicone caulks/sealants, silicone rubber molded products, laboratory glassware greases, spray lubricants, heat transfer fluids, waxes and polishing compounds (neat or spray aerosols), mold release agents for plastics injection molding operations, waterproofing formulations, vinyl and leather preservatives, and hand lotions which may contain ingredients listed as cyclomethicone, dimethicone and polymethicone (at the discretion of Biosystems Instrument Service department) void Biosystems' Standard Warranty as it applies to the replacement of combustible gas sensors.

ToxiLtd™ / ToxiPro™ Single Sensor Gas Detectors

PRODUCT HIGHLIGHT:

A full-featured single gas monitor at a low cost.



FEATURES

DESIGN

- Compact and rugged.
- IPX5/IPX7 rated protection against water ingress.
- Over-molded boot.
- One button operation.
- Large display (backlit in ToxiPro).
- Loud alarm.
- Top and front mounted bright LED.
- Available with built-in vibrating alarm.
- Exceeds IEC 61000-4-3 for level 3 RFI immunity specifications.

LOGGING AND DOWNLOAD

- Automatic event logger (20 events, including sensor type, max, average, time and duration).
- IrDA® PC communication.
- ToxiPro comes standard with black-box recorder.
- ToxiPro available with datalogger.

BATTERIES

- ToxiLtd: Internal lithium – 2 years of operation.
- ToxiPro: Replaceable lithium – 9000 hrs of operation.

SENSORS AND CALIBRATION

- ToxiLtd and ToxiPro: O₂, CO, H₂S, SO₂.
- ToxiPro: CO+, CO-H, Cl₂, ClO₂, NH₃, NO₂, PH₃, HCN.
- One-button automatic calibration.

READOUT

TOXIPRO

- Current, max, STEL and TWA gas readings.
- Time.

TOXILTD

- Life remaining, current gas readings during alarm and 24-hour max.

ALARMS

TOXIPRO

- Low, high, STEL and TWA audible and visual alarms.
- Optional vibrating alarm.

TOXILTD

- Low and high audible and visual alarms.
- Optional vibrating alarm.

STANDARD ACCESSORIES

- Heavy duty alligator clip.
- Calibration adapter.
- Reference manual and quick reference card.

OPTIONAL ACCESSORIES

- Lanyard.
- IQ Express bump test and calibration station.
- Belt clip / hard hat adapter (standard slot).
- Cell phone style swivel clip.

COMPLETE TOXIPRO KIT CONFIGURATION

VALUE PACK

- All standard accessories.
- Compact sized (34 liter) cylinder of calibration gas.
- Fixed flow regulator.
- Foam-lined carrying case.

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ToxiLtd / ToxiPro Single Sensor Gas Detectors

ToxiLtd Configuration

PART NUMBER	TOXI LTD SENSORS INSTALLED	
54-44-90	O ₂	Oxygen
54-44-01	CO	Carbon Monoxide
54-44-02	H ₂ S	Hydrogen Sulfide
54-44-03	SO ₂	Sulfur Dioxide

ToxiPro Configuration

PART NUMBER	TOXI PRO SENSORS INSTALLED		Value Pack
54-45-90	O ₂	Oxygen	K
54-45-01	CO	Carbon Monoxide	•
54-45-05	CO+	CO Plus	•
54-45-19	CO-H	CO Minus	•
54-45-02	H ₂ S	Hydrogen Sulfide	•
54-45-03	SO ₂	Sulfur Dioxide	•
54-45-21	NH ₃	Ammonia	•
54-45-18†	Cl ₂	Chlorine (specific)	•
54-45-20‡	ClO ₂	Chlorine Dioxide (specific)	
54-45-09	NO ₂	Nitrogen Dioxide	•
54-45-10	HCN	Hydrogen Cyanide	•
54-45-13	PH ₃	Phosphine	•

† The non specific Cl₂ and ClO₂ sensors can be used for the detection of both gases. The specific Cl₂ and ClO₂ sensors are designed for the target gas only.

‡ The ClO₂ specific configuration is not available in kits and requires the use of a calibration gas generator.

ToxiLtd / ToxiPro Options

(Add option code letter to the part number.)

CODE	DESCRIPTION
K	VALUE PACK
	Value Pack Kits contain standard accessories, compact sized calibration gas, fixed flow rate regulator, and foam-lined carrying case.
V	VIBRATING ALARM
	Adds an internal vibrating alarm which will work in tandem with the audible and visual alarms.
D	DATALOGGING
	Available for ToxiPro only. Enables the ToxiPro to record and download measurements and time history data. Computer must support IrDA® to download.

ToxiLtd / ToxiPro Single Sensor Gas Detectors

ToxiPro Replacement Sensors

PART NUMBER	DESCRIPTION	RANGE	RESOLUTION
54-47-90	O ₂	Oxygen (2 years)	0 – 30% / Vol. 0.1%
54-47-01	CO	Carbon Monoxide	0 – 1000 PPM 1 PPM
54-47-05	CO+	CO Plus dual purpose CO/H ₂ S (provides a non-specific readout for CO and H ₂ S)	CO: 0 – 1000 PPM 1 PPM H ₂ S: 0 – 200 PPM 1 PPM
54-47-19	CO-H	CO Minus, reduced sensitivity to H ₂	0 – 1000 PPM 1 PPM
54-47-02	H ₂ S	Hydrogen Sulfide	0 – 200 PPM 1 PPM
54-47-03	SO ₂	Sulfur Dioxide	0 – 20 PPM 0.1 PPM
54-47-21†	NH ₃	Ammonia	0 – 100 PPM 1 PPM
54-47-18†	Cl ₂	Chlorine (specific)	0 – 20 PPM 0.1 PPM
54-47-20†	ClO ₂	Chlorine Dioxide (specific)	0 – 5 PPM 0.01 PPM
54-47-09†	NO ₂	Nitrogen Dioxide	0 – 20 PPM 0.1 PPM
54-47-10†	HCN	Hydrogen Cyanide	0 – 100 PPM 0.1 PPM
54-47-13	PH ₃	Phosphine	0 – 20 PPM 0.01 PPM
54-47-03	SO ₂	Sulfur Dioxide	0 – 100 PPM 0.1 PPM

† Special reactive gas calibration adapter and tubing required for proper calibration.

ToxiLtd / ToxiPro Accessories

PART NO.	DESCRIPTION
54-46-101	Replacement sensor filter.
35-964	Lanyard for ToxiLtd and ToxiPro.
54-46-102	Replacement belt clip for ToxiLtd and ToxiPro.
54-46-103	Replacement clothes clip for ToxiLtd and ToxiPro.
54-46-109	Replacement cell phone-style swivel clip.
54-46-104	Manual sample draw kit. Includes adapter, probe, and 10' tubing. Not for use with Cl ₂ and ClO ₂ .
54-46-105	Case for Value Pack. Foam-lined case, with room for 1 compact sized calibration gas cylinder.
54-46-106	Calibration / sample draw adapter.
54-46-107	Calibration adapter. Includes FEP lined tubing for reactive gases (NH ₃ , Cl ₂ , ClO ₂ , HCN and NO ₂).
54-46-108	ToxiPro datalogger upgrade. Field upgradeable.
54-26-0603	ToxiPro BioTrak Software Kit. Includes BioTrak software and manual.

† Computer must be equipped with infrared adapter (IrDA) to download.

‡ Download software not included.

Toxi Vision®

Single Sensor Gas Detectors

PRODUCT HIGHLIGHT:

A tough and rugged single sensor gas detector.



FEATURES

DESIGN

- IPX5/IPX7 rated protection against water ingress.
- Compact and rugged.
- One button operation.
- Large backlit display.
- Loud alarm (92dBA @ 1 foot).
- RFI immunity to 40 V/m.
- Top and front mounted bright LED.
- Available with built-in vibrating alarm.
- Available with rubber boot.
- Security beep (selectable via PC).

BATTERIES

- Alkaline.
- Up to 4000 hours continuous operation.
- Rechargeable version available for LEL.

SENSORS AND CALIBRATION

- O₂, CO, CO+, CO-H, H₂S, SO₂, Cl₂, ClO₂, NH₃, NO₂, HCN, PH₃, LEL.
- One-button automatic calibration.

READOUT AND ALARMS

- Current and Max gas readings.
- STEL and TWA readings (selectable via PC).
- Low, High, STEL and TWA alarms.
- Programmable alarm levels (via PC).

STANDARD ACCESSORIES

- Belt clip
- Calibration adapter.
- Reference manual.
- Quick reference card.

COMPLETE TOXI VISION KIT CONFIGURATION

VALUE PACK INCLUDES

- All standard accessories.
- Compact sized (34 liter) cylinder of calibration gas.
- Fixed flow regulator.

(See matrix for available value pack configurations.)

TOXI VISION CO RESPONSE KIT

CO RESPONSE KIT INCLUDES

- Toxi Vision CO Instrument.
- 10 ToxiTube Dosimeter Tubes.
- All standard accessories.
- Compact sized (34 liter) cylinder of calibration gas.
- Fixed flow regulator.
- Waterproof, Pelican™ style foam-lined carrying case.
- Part Number: 54-37-01RK

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Toxi Vision Single Sensor Gas Detectors

Toxi Vision Configuration

PART NUMBER	PHD ULTRA SENSORS INSTALLED	Value Pack
54-37-90	O ₂ Oxygen	K
54-37-01	CO Carbon Monoxide	•
54-37-05	CO+ "CO Plus"	•
54-37-19	CO-H CO Minus, reduced sensitivity to H ₂	•
54-37-02	H ₂ S Hydrogen Sulfide	•
54-37-03	SO ₂ Sulfur Dioxide	•
54-37-21	NH ₃ Ammonia	•
54-37-08†	Cl ₂ Chlorine (non-specific)	•
54-37-18†	Cl ₂ Chlorine (specific)	•
54-37-12†	ClO ₂ Chlorine Dioxide (non-specific)	•
54-37-20†‡	ClO ₂ Chlorine Dioxide (specific)	•
54-37-09	NO ₂ Nitrogen Dioxide	•
54-37-10	HCN Hydrogen Cyanide	•
54-37-13	PH ₃ Phosphine	•
54-37-80	LEL LEL (NEW)	•

† The non specific Cl₂ and ClO₂ sensors can be used for the detection of both gases. The specific Cl₂ and ClO₂ sensors are designed for the target gas only.

‡ The ClO₂ specific configuration is not available in kits and requires the use of a calibration gas generator.

Toxi Vision Options

(Add option code letter to the part number.)

CODE	DESCRIPTION
K	VALUE PACK
	Value Pack Kits contain standard accessories, compact sized calibration gas, fixed flow rate regulator, and compact foam-lined carrying case.
V	VIBRATING ALARM
	Adds an internal vibrating alarm, which will work in tandem with the audible and visual alarms.
B	RUBBER BOOT
	Includes Toxi Vision protective boot.

Toxi Vision Single Sensor Gas Detectors

Toxi Vision Replacement Sensors

PART NUMBER	DESCRIPTION	RANGE	RESOLUTION
54-39-90	O ₂	Oxygen (2 years)	0 – 30%/Vol. 0.1%
54-39-01	CO	Carbon Monoxide	0 – 1000 PPM 1 PPM
54-39-05	CO+	Dual purpose CO / H ₂ S Provides a non-specific readout for CO and H ₂ S	CO: 0 – 1000 PPM 1 PPM H ₂ S: 0 – 200 PPM 1 PPM
54-39-19	CO-H	CO Minus, reduced sensitivity to H ₂	0 – 1000 PPM 1 PPM
54-39-02	H ₂ S	Hydrogen Sulfide	0 – 200 PPM 1 PPM
54-39-03	SO ₂	Sulfur Dioxide	0 – 100 PPM 0.1 PPM
54-39-21†	NH ₃	Ammonia	0 – 100 PPM 1 PPM
54-39-08†	Cl ₂	Chlorine (non-specific)	0 – 20 PPM 0.1 PPM
54-39-18†	Cl ₂	Chlorine (specific)	0 – 20 PPM 0.1 PPM
54-39-12†	ClO ₂	Chlorine Dioxide (non-specific)	0 – 5 PPM 0.1 PPM
54-39-20†	ClO ₂	Chlorine Dioxide (specific)	0 – 5 PPM 0.01 PPM
54-39-09†	NO ₂	Nitrogen Dioxide sensor	0 – 20 PPM 0.1 PPM
54-39-10†	HCN	Hydrogen Cyanide	0 – 100 PPM 0.1 PPM
54-39-13†	PH ₃	Phosphine	0 – 10 PPM 0.01 PPM

† Special reactive gas calibration adapter required for proper calibration.

Toxi Vision Accessories

PART NO.	DESCRIPTION
54-38-03	Rubber boot.
54-38-04	Toxi Vision PC programming kit. Includes software and serial interface cable.
35-964	Lanyard for Toxi Vision.
54-38-05	Replacement belt clip.
54-38-06	Manual sample draw kit. Includes adapter, probe, and 10' tubing Not for use with Cl ₂ and ClO ₂ .
54-38-07	Case for Value Pack. Foam-lined case, with room for 1 compact sized calibration gas cylinder.
54-38-01	Calibration / sample draw adapter.
54-38-09	Calibration adapter. Includes FEP lined tubing for reactive gases (NH ₃ , Cl ₂ , ClO ₂ , HCN and NO ₂).
54-38-11	Replacement 10-Pack ToxiTube Dosimeter Tubes.

Mighty-Tox

90-Day Disposable Single Sensor Gas Detectors

PRODUCT HIGHLIGHT:

The smallest 90-day disposable single sensor monitor.



FEATURES

DESIGN

- Disposable, small and rugged (1 1/2" x 1 1/8" x 7/8").
- Steel clip attaches to belt, collar or hard hat.
- RFI-protected metal-plated ABS case.
- Less than 1 oz.
- Built-in test button.

OPERATING LIFE

- 90 days of detection from time of activation.
- Warning chirp for seven days prior to shutdown.
- 180-day shelf life.

ALARMS

- Bright LED (alarm and security flash).
- Two alarm set points.
- Two tone alarm.
- Low battery / shutdown.

SENSORS

- CO and H₂S versions available.
- Accurate electrochemical sensor.

STANDARD ACCESSORIES

- Detector in sealed container.
- Steel clip.
- Bump test adapter.
- Operators guide.

Mighty-Tox Descriptions

PART NO.	SENSOR INSTALLED / ALARM LVL
54-28-01	Carbon Monoxide (CO) (35 and 100 ppm)
54-28-01-C	Carbon Monoxide (CO) (25 and 100 ppm)
54-28-02	Hydrogen Sulfide (H ₂ S) (10 and 20 ppm)

Mighty-Tox Miscellaneous Accessories

PART NO.	DESCRIPTION
10-384	Bump test adapter for Mighty-Tox

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*Feature rich at a low cost
confined space instrument.*



FEATURES

DESIGN

- One button operation.
- Real time gas readings.
- Easy-to-read front-mounted backlit graphic display.
- IrDA port for communication with PC.
- Rated IPX5 for protection against water ingress.
- Exceeds IEC 1000-4-3 for level 3 RFI immunity specifications.

OPTIONAL SLIP-ON PUMP

- Software-controlled pump.
- Powered by the MultiPro battery.
- Automatic low flow alarm.
- Automatic leak test before every use.

BATTERIES

- Easily interchangeable alkaline and rechargeable (Lithium Ion) battery packs.
- Long battery life.
Alkaline: Diffusion 24 hrs Pump 14 hrs
Li-Ion: Diffusion 24 hrs Pump 14 hrs
- Li-Ion battery recharges in less than 5 hours.

SENSORS AND CALIBRATION

- Three sensors and up to four channels of direct detection. O₂, LEL, and a choice of CO, H₂S or Duo-Tox two channel CO/H₂S sensor.
- Field replaceable sensors.
- One button auto calibration.
- Calibration due reminder.
- Sensor span reserve indicators for predictive maintenance.
- IQ compatible.

ALARMS

- Warning, Danger, STEL and TWA alarms.
- Bright LED alarm light.
- Loud audible alarm 92dBA at one foot.
- Vibrating alarm optional.

FEATURES (continued)

RECORDING

- Event Logger stores max and average readings as well as time and duration for 20 events.
- Black-Box recorder with over 40 hours of storage.
- Available with optional datalogging for convenient and easy downloading to PC.
- Compatible with Biosystems BioTrak® Software.

STANDARD ACCESSORIES

- Clothing clip.
- Reference manual.
- Laminated quick reference card.
- Rechargeable Li-Ion version includes charger.
- Calibration adapter.
- Training CD-ROM.

COMPLETE MULTIPRO INSTRUMENT KITS

CONFINED SPACE KIT

- All standard accessories.
- Standard sized (58 or 103 liter) cylinder(s) of calibration gas.
- Fixed flow regulator with gauge.
- Foam-lined waterproof carrying case.

VALUE PACK

- All standard accessories.
- Compact sized (34 liter) cylinder of all-in-one calibration gas.
- Fixed flow regulator.
- Foam-lined carrying case.

MuliPro Multi-Gas Detectors

MuliPro Configuration

Battery and/or Kit Configuration (CSK = Confined Space Kit)

PART NUMBER	MULTIPRO SENSORS INSTALLED						
		A	AC	AV	N	NC	NV
54-48-300	LEL / O ₂	•	•	•	•	•	•
54-48-301	LEL / O ₂ / CO	•	•	•	•	•	•
54-48-302	LEL / O ₂ / H ₂ S	•	•	•	•	•	•
54-48-314	LEL / O ₂ / Duo-Tox (CO/H ₂ S)	•	•	•	•	•	•

MuliPro Sensors

PART NUMBER	DESCRIPTION	RANGE	RESOLUTION
54-49-80	LEL	Combustible Gas	0 – 100% LEL
54-49-90	O ₂	Oxygen	0 – 30% / Vol.
54-49-01	CO	Carbon Monoxide	0 – 1000 PPM
54-49-02	H ₂ S	Hydrogen Sulfide	0 – 200 PPM
54-49-14	Duo-Tox	Dual Channel CO/H ₂ S (Provides Substance specific readouts for CO and H ₂ S)	CO: 0 – 1000 PPM H ₂ S: 0 – 200 PPM
54-49-200	MultiPro sensor exchange set.	O ₂ , LEL, Duo-Tox*	
54-49-201	MultiPro sensor exchange set.	O ₂ , LEL, CO*	
54-49-202	MultiPro sensor exchange set.	O ₂ , LEL, H ₂ S*	

* This part number requires return of identical set of expired MultiPro sensors.

MuliPro Remote Accessories

PART NO.	DESCRIPTION
54-49-102	Continuous sample pump for MultiPro. Includes 10' of sample tubing and sample probe assembly.
54-49-104	Sample draw/calibration adapter.
54-49-105	Sample draw kit. Includes adapter, squeeze bulb, 10' of tubing and sample probe assembly.
54-05-A0403	Sample probe assembly. Does not include tubing, squeeze bulb, or sample draw adapter.
54-05-A0405	Sample probe assembly with 11.5-inch stainless-steel probe tube. Does not include tubing, squeeze bulb, or sample draw / calibration adapter.

MuliPro Charging and Datalogging Accessories

PART NO.	DESCRIPTION
54-49-103-1	Slip-in fast charger (110 VAC) for MultiPro. Includes "wall-cube" supply.
54-49-103-12	Slip-in fast charger (12 VDC) for MultiPro. Includes "cigarette lighter" style adapter and vehicle mounting hardware.
54-49-106	MultiPro Alkaline battery pack.
54-49-107	MultiPro Li-Ion rechargeable battery pack.
54-26-0603	MultiPro BioTrak Software Kit. Includes BioTrak software and manual.
54-26-0605S	Infrared communication device (Serial – IrDA). Requires one available PC serial port.
54-26-0605U	Infrared communication device (USB – IrDA). Requires one USB port.
54-49-110	MultiPro datalogger upgrade. Field upgradeable.

MuliPro Options

(Add option code letter to the part number.)

CODE	DESCRIPTION
A	ALKALINE Alkaline version may be upgraded to Li-Ion rechargeable version after purchase.
N	RECHARGEABLE Li-Ion version includes charger. Li-Ion option is available in Value Pack configurations.
C	CONFINED SPACE KIT (CSK) Confined Space Kits contain standard accessories, standard sized calibration gas and fixed flow rate regulator conveniently packaged in a rugged waterproof carrying case.
V	VALUE PACK Value Pack Kits contain standard accessories, compact sized calibration gas, fixed flow rate regulator, and foam-lined carrying case. See matrix for configurations.
D	DATALOGGING Enables the MultiPro to record and download measurements. This upgrade is available after purchase. Download software must be purchased separately. Computer must support infrared communication (IrDA) to download.
Y	VIBRATING ALARM Adds an internal vibrating alarm, which will work in tandem with the audible and visual alarms.

A tough, durable confined space instrument with an internal pump.



FEATURES

DESIGN

- IPX5/IPX7 rated protection against water ingress.
- Rugged metal plated ABS case.
- RFI Immunity to 40V/m.
- True one button operation.
- Large front mounted backlit display.
- Loud alarm (92dBA @ 1 foot).
- Rubber boot available.

OPTIONAL BUILT-IN PUMP

- Real time display of pump status.
- Automatic low flow alarm.
- Automatic leak test before every use.
- Easily switch between diffusion and pump mode.

RECORDING

- Black-Box recorder with over 40 hours of storage.
- Available with optional datalogging for convenient and easy downloading to a computer.

SENSORS AND CALIBRATION

- Up to four sensors. O₂, LEL, CO and H₂S.
- Field replaceable sensors.
- One button auto calibration.
- Calibration due reminder.
- Sensor span reserve indicators during calibration for predictive maintenance.
- Datalogging version is compatible with IQ Dock™.

BATTERIES

- Interchangeable alkaline (3 "AA") or rechargeable (NiMH) battery packs.
- Long battery life.
Alkaline: Diffusion 16 hrs Pump 12 hrs
NiMH: Diffusion 20 hrs Pump 16 hrs
- Drop-in charger for NiMH. Fits instrument, instrument with boot or battery pack alone.
- Recharges in 7 hours.

STANDARD ACCESSORIES

- Rechargeable NiMH version includes charger.
- Internal pump version includes 10' of tubing, sample probe and replacement filters.
- Belt clip.
- Calibration adapter and tubing.
- Operators guide.
- Laminated quick reference guide.
- Training CD-ROM.

COMPLETE MULTIVISION INSTRUMENT KITS

CONFINED SPACE KIT

- All standard accessories.
- Standard sized (58 or 103 liter) cylinder(s) of calibration gas.
- Fixed flow regulator with gauge.
- Foam-lined waterproof carrying case.

VALUE PACK

- All standard accessories.
- Compact sized (34 liter) cylinder of all-in-one calibration gas.
- Fixed flow regulator.
- Foam-lined carrying case.

MultiVision Multi-Gas Detectors

MultiVision Configuration Diffusion Version

Battery and/or Kit Configuration (CSK = Confined Space Kit)

PART NUMBER	MULTIVISION SENSORS INSTALLED	BATTERY / KIT CONFIGURATION				
		A	AC	AV	N	NC
54-40-30000	LEL / O ₂	•	•	•	•	•
54-40-30100	LEL / O ₂ / CO	•	•	•	•	•
54-40-30200	LEL / O ₂ / H ₂ S	•	•	•	•	•
54-40-30102	LEL / O ₂ / CO / H ₂ S	•	•	•	•	•



MultiVision Options

(Add option code letter to the part number.)

CODE	DESCRIPTION
------	-------------

A ALKALINE

Alkaline configurations may be upgraded to NiCad/Alkaline after purchase.

N RECHARGEABLE

NiMH configuration includes charger. NiMH configuration is not available in Value Pack.

C CONFINED SPACE KIT (CSK)

Confined Space Kits contain standard accessories, standard sized calibration gas and fixed flow rate regulator conveniently packaged in a rugged waterproof carrying case.

V VALUE PACK

Value Pack Kits contain standard accessories, compact sized calibration gas, fixed flow rate regulator, and foam-lined carrying case. See matrix for configurations.

P INTERNAL PUMP

Includes internal pump, sample draw adapter, 10 feet of tubing and sample probe. This option will allow the user to switch automatically between sample draw and diffusion mode by attaching and detaching the pump adapter.

D DATALOGGING

Enables the MultiVision to record and download measurements. Necessary in order to be IQ-Dock compatible. Download software must be purchased separately. Computer must support infrared communication (IrDA) to download.

MultiVision Sensors

PART NUMBER	DESCRIPTION	RANGE	RESOLUTION
54-42-80	LEL	Combustible Gas	0 – 100% LEL
54-42-90	O ₂	Oxygen	0 – 30% / Vol.
54-42-01	CO	Carbon Monoxide	0 – 1000 PPM
54-42-02	H ₂ S	Hydrogen Sulfide	0 – 200 PPM
54-42-101	MultiVision Exchange set of 4 sensors.		
	O ₂ , LEL, CO and H ₂ S*		

* This part number requires return of identical set of expired MultiVision sensors.

Most Common MultiVision Accessories

PART NO.	DESCRIPTION
54-41-004B	MultiVision Rubber Boot. Black.
54-41-004R	MultiVision Rubber Boot. Red.
54-41-004Y	MultiVision Rubber Boot. Yellow.
54-41-007	MultiVision Manual Sample draw kit. Includes adapter, squeeze bulb, 10' of tubing.
54-41-008	MultiVision BioTrak Download software. Requires MultiVision datalogging option be installed. Computer must support infrared communication (IrDA) to download.
54-26-0605S	Infrared communication device (Serial – IrDA) – Requires one available PC serial port.
54-26-0605U	Infrared communication device (USB – IrDA) – Requires one available USB port.

MultiVision Remote Accessories

PART NO.	DESCRIPTION
54-41-001	MultiVision Calibration Adapter.
54-41-005	MultiVision Remote Sampling Adapter (Manual sample draw).
54-41-003	MultiVision Remote Sampling Adapter (Internal pump). Includes pump activation magnet. Requires internal pump to be installed in MultiVision.
54-41-006	MultiVision Internal Pump Upgrade. Must be returned to Biosystems service department. This part number includes labor charges for upgrade. Does not include freight.
54-41-007	MultiVision Manual sample draw kit. Includes adapter, squeeze bulb, 10' of tubing and sample probe assembly.
54-05-A0403	Sample probe assembly. Does not include tubing, squeeze bulb, or sample draw adapter.
54-05-A0405	Sample probe assembly with 11.5-inch stainless-steel probe tube. Does not include tubing, squeeze bulb, or sample draw / calibration adapter.

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MultiVision Multi-Gas Detectors

MultiVision Charging, Datalogging and IQ Dock™ Accessories

PART NO.	DESCRIPTION
54-41-002	MultiVision Slip-in fast charger (110 VAC). Includes "wall cube" supply.
54-41-010	MultiVision Slip-in fast charger (12 VDC). Includes "cigarette lighter" style adapter, and vehicle mounting hardware.
54-41-011	MultiVision Five instrument 110 VAC slip-in multi-charger. Includes power supply.
35-0488	MultiVision Alkaline Battery Pack.
35-0489	MultiVision NiMH Battery Pack.
54-41-016	MultiVision PC programming kit. Used for instrument configuration only. Includes software and serial interface cable.
54-41-014	MultiVision Datalogger and infrared communication (IrDA) upgrade. Must be returned to Biosystems service department. Includes labor charges for upgrade. Does not include freight.
54-41-008	MultiVision BioTrak Download software. Requires MultiVision datalogging option be installed. Computer must support infrared communication (IrDA) to download.
54-26-0605S	Infrared communication device (Serial – IrDA) – Requires one available PC serial port.
54-26-0605U	Infrared communication device (USB – IrDA) – Requires one available USB port.

MultiVision Miscellaneous Accessories

PART NO.	DESCRIPTION
13-230	MultiVision Reference Manual.
13-232	MultiVision Quick Reference Card.
22-165	MultiVision training video.
22-166	MultiVision training CD-ROM.
54-41-004B	MultiVision Rubber Boot. Black.
54-41-004R	MultiVision Rubber Boot. Red.
54-41-004Y	MultiVision Rubber Boot. Yellow.
42-010	Shoulder Strap.

MultiVision Calibration Materials and Carrying Cases

PART NO.	DESCRIPTION
54-41-012	MultiVision Case for Value Pack. Foam-lined case, with room for 1 compact sized calibration gas cylinder.
35-0259	MultiVision Case for Confined Space Kit. Foam-lined, waterproof Pelican™ style case with room for one standard sized calibration gas cylinder.
54-41-013	MultiVision Calibration kit. Includes foam-lined carrying case with room for up to three cylinders of calibration gas. Kit contains 12-023 regulator and other fittings. Kit does not include gas.
54-41-V9045	MultiVision Value Pack "Make-up" Kit. Includes Value Pack case with 54-9045E calibration gas and 12-022 economy regulator. For use with O ₂ / LEL and O ₂ / LEL / CO configurations.
54-41-V9047	MultiVision Value Pack "Make-up" Kit. Includes Value Pack case with 54-9047E calibration gas and 12-023 regulator. For use with O ₂ / LEL / H ₂ S configurations.
54-41-V9049	MultiVision Value Pack "Make-up" Kit. Includes Value Pack case with 54-9049E calibration gas and 12-023 regulator. For use with O ₂ / LEL / CO / H ₂ S configurations.
54-41-001	MultiVision Calibration Adapter.

PhD Lite

Multi-Gas Detectors

PRODUCT HIGHLIGHT:

A rugged, compact, durable, multi-lingual, multi-gas monitor.



FEATURES

DESIGN

- Rugged metal-plated, RFI-protected case.
- One button operation.
- Easy-to-read front-mounted backlit graphic display.
- Multiple languages.

OPTIONAL SLIP-ON PUMP

- Software-controlled pump.
- Powered by the PhD Lite battery.
- Automatic low flow alarm.
- Automatic leak test before every use.

RECORDING

- Black-Box recorder with over 40 hours of storage.
- Available with optional datalogging for convenient and easy downloading to a computer.
- Available with optional patented TouchID™ for automatic user and location identification.

SMART SENSORS AND CALIBRATION

- Three sensors. O₂, LEL and up to two toxic channels using Biosystems' Duo-Tox two channel CO/H₂S sensor (*see matrix for available sensors*).
- Field replaceable sensors.
- One button auto calibration.
- Calibration due reminder.
- Sensor span reserve indicators following successful calibration for predictive maintenance.
- IQ Compatible.

BATTERIES

- Alkaline or rechargeable (NiMH) versions.
- Up to 16 hours battery life in either configuration.
- Drop-in fast charger.
- Recharges in less than 2 hours.

STANDARD ACCESSORIES

- Hand aspirated sample draw kit with 10' of tubing, sample probe and replacement filters.
- Rechargeable NiMH version includes charger.
- Belt clip.
- Reference manual.
- Laminated quick reference card.
- Interactive training CD-ROM.
- Proper calibration adapter(s), based on sensor type(s).

COMPLETE PhD LITE INSTRUMENT KITS

CONFINED SPACE KIT

- All standard accessories.
- Standard sized (58 or 103 liter) cylinder(s) of calibration gas.
- Fixed flow regulator with gauge.
- Foam-lined waterproof carrying case.

VALUE PACK

- All standard accessories.
- Compact sized (34 liter) cylinder of all-in-one calibration gas.
- Fixed flow regulator.
- Foam-lined carrying case.

(*See matrix for available value pack configurations.*)

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PhD Lite Configuration

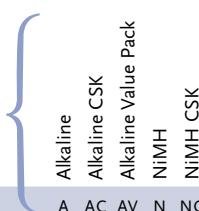
Battery and/or Kit Configuration (CSK = Confined Space Kit)

PART NUMBER	PHD LITE SENSORS INSTALLED	Battery Options				
		A	AC	AV	N	NC
54-23-000	No Sensors Installed	•		•		
54-23-300	LEL / O ₂	•	•	•	•	•
54-23-301	LEL / O ₂ / CO	•	•	•	•	•
54-23-305	LEL / O ₂ / CO+	•	•	•	•	•
54-23-319	LEL / O ₂ / CO-H	•	•	•	•	•
54-23-302	LEL / O ₂ / H ₂ S	•	•	•	•	•
54-23-314	LEL / O ₂ / Duo-Tox (CO/H ₂ S)	•	•	•	•	•
54-23-303	LEL / O ₂ / SO ₂ (0.0-25 / 0.1 ppm Incr.)	•	•		•	•
54-23-321	LEL / O ₂ / NH ₃	•	•		•	•
54-23-308†	LEL / O ₂ / Cl ₂ (non-specific)	•	•		•	•
54-23-318†	LEL / O ₂ / Cl ₂ (specific)	•	•		•	•
54-23-312†	LEL / O ₂ / ClO ₂ (non-specific)	•	•		•	•
54-23-320†‡	LEL / O ₂ / ClO ₂ (specific)	•		•		
54-23-309	LEL / O ₂ / NO ₂	•	•		•	•
54-23-310	LEL / O ₂ / HCN	•	•		•	•
54-23-313	LEL / O ₂ / PH ₃	•	•		•	•

† The non specific Cl₂ and ClO₂ sensors can be used for the detection of both gases. The specific Cl₂ and ClO₂ sensors are designed for the target gas only.

‡ The ClO₂ specific configuration is not available in kits and requires the use of a calibration gas generator.

Please refer to the PhD Lite Smart Sensor matrix on page 15 for more information.



PhD Lite Options

(Add option code letter to the part number.)

CODE DESCRIPTION
A ALKALINE
Alkaline version may accept additional battery types (dependent on applicable intrinsic safety approvals).
N RECHARGEABLE
NiMH version includes charger. NiMH option is not available in Value Pack configurations. PhD Lite Alkaline and NiMH batteries are not interchangeable.
C CONFINED SPACE KIT (CSK)
Confined Space Kits contain standard accessories, standard sized calibration gas and fixed flow rate regulator conveniently packaged in a rugged waterproof carrying case.
V VALUE PACK
Value Pack Kits contain standard accessories, compact sized calibration gas, fixed flow rate regulator, and foam-lined carrying case. See matrix for configurations.
D DATALOGGING
Enables the PhD Lite to record and download measurements. This option is available as an upgrade after purchase. Download software must be purchased separately. Computer must support IrDA to download.
T TOUCHID™
This option includes both datalogging and TouchID™ reader. TouchID™ buttons and programming software must be purchased separately.

PhD Lite Multi-Gas Detectors

PhD Lite Smart Sensors

PART NUMBER	DESCRIPTION		RANGE	RESOLUTION
54-25-80	LEL	Combustible Gas	0 – 100% LEL	1% LEL
54-25-90	O ₂	Oxygen	0 – 30% / Vol.	0.1%
54-25-01	CO	Carbon Monoxide	0 – 1000 PPM	1 PPM
54-25-05	CO+	CO Plus dual purpose CO/H ₂ S (provides a non-specific readout for CO and H ₂ S)	CO: 0 – 1000 PPM H ₂ S: 0 – 200 PPM	1 PPM
54-25-19	CO-H	CO Minus, reduced sensitivity to H ₂	0 – 1000 PPM	1 PPM
54-25-02	H ₂ S	Hydrogen Sulfide	0 – 200 PPM	1 PPM
54-25-14	Duo-Tox	Dual Channel CO/H ₂ S (provides Substance specific readouts for CO and H ₂ S)	CO: 0 – 1000 PPM H ₂ S: 0 – 200 PPM	1 PPM
54-25-03	SO ₂	Sulfur Dioxide	0 – 25 PPM	0.1 PPM
54-25-15	SO ₂ -Ext.	Sulfur Dioxide extended range	0 – 100 PPM	1 PPM
54-25-04†	NH ₃	Ammonia (for software versions prior to 2.0)	0 – 50 PPM	1 PPM
54-25-21†	NH ₃	Ammonia	0 – 100 PPM	1 PPM
54-25-08† ††	Cl ₂	Chlorine (non-specific)	0 – 50 PPM	0.1 PPM
54-25-18† ††	Cl ₂	Chlorine (specific)	0 – 50 PPM	0.1 PPM
54-25-12† ††	ClO ₂	Chlorine Dioxide (non-specific)	0 – 15 PPM	0.1 PPM
54-25-20	ClO ₂	Chlorine Dioxide (specific)	0 – 5 PPM	0.01 PPM
54-25-06	NO	Nitric Oxide	0 – 350 PPM	1 PPM
54-25-09†	NO ₂	Nitrogen Dioxide	0 – 50 PPM	0.1 PPM
54-25-10†	HCN	Hydrogen Cyanide	0 – 100 PPM	0.2 PPM
54-25-13	PH ₃	Phosphine	0 – 20 PPM	0.1 PPM

† Special reactive gas calibration adapter (54-26-0405) required for proper calibration.

†† The non-specific Cl₂ and ClO₂ sensors can be used for the detection of both gases.
The specific Cl₂ and ClO₂ sensors are designed for the target gas only.

Most Common PhD Lite Accessories

PART NO.	DESCRIPTION
54-26-0101	Continuous sample pump for PhD Lite. Includes 10' of sample tubing and sample probe assembly.
54-26-0101-C	Continuous sample pump for PhD Lite – Configured for reactive gas detection, such as Cl ₂ and ClO ₂ . Includes 10' of inert sample tubing and sample probe assembly.
54-26-0302	Leather holster. For PhD Lite without pump.
54-26-0306	Leather holster. For PhD Lite with pump attached.
54-26-0603	PhD Lite BioTrak Software Kit. Includes BioTrak software and manual.
54-26-0605S	Infrared communication device (Serial – IrDA) – Requires one available PC serial port.
54-26-0605U	Infrared communication device (USB – IrDA) – Requires one available USB port.
54-27-0802	TouchID™ programming kit. Includes software, programming wand, serial connector, 10 TouchID™ buttons, 10 key chain / wall mounts for buttons and 10 TouchID™ badges.

PhD Lite Multi-Gas Detectors

PhD Lite Remote Accessories

PART NO.	DESCRIPTION
54-26-0101	Continuous sample pump for PhD Lite. Includes 10' of sample tubing and sample probe assembly.
54-26-0101-C	Continuous sample pump for PhD Lite – Configured for reactive gas detection, such as Cl ₂ , and ClO ₂ . Includes 10' of inert sample tubing and sample probe assembly.
35-0344	Tubing kit for reactive gas detection (Cl ₂ and ClO ₂). Includes 10' of tubing plus adapters.
54-26-0401	Sample draw kit. Includes adapter, squeeze bulb, 10' of tubing and sample probe assembly. Not for use with Cl ₂ and ClO ₂ .
54-05-A0403	Sample probe assembly. Does not include tubing, squeeze bulb, or sample draw adapter.
54-26-0301	Sample draw/calibration adapter.
54-05-A0405	Sample probe assembly with 11.5-inch stainless-steel probe tube. Does not include tubing, squeeze bulb, or sample draw / calibration adapter.

PhD Lite Charging, Datalogging and IQ Dock™ Accessories

PART NO.	DESCRIPTION
54-26-0201	Slip-in fast charger (110 VAC) for PhD Lite. Includes “wall cube” supply.
54-26-0202	Slip-in fast charger (12 VDC) for PhD Lite. Includes “cigarette lighter” style adapter, and vehicle mounting hardware.
54-26-0204	Five instrument 110 VAC slip-in multi-charger for PhD Lite. Includes power supply.
54-26-0601†‡	Datalogger upgrade for PhD Lite without “Black-Box” recorder. (Instrument disassembly required.) If your non-datalogging PhD Lite shows the time and date during startup, it does include a “Black-Box” recorder.
54-26-0606†‡	Datalogger upgrade for PhD Lite with “Black-Box” recorder.
54-26-0603†	PhD Lite BioTrak Software Kit. Includes BioTrak software and manual.
54-26-0605S	Infrared communication device (Serial – IrDA) – Requires one available PC serial port.
54-26-0605U	Infrared communication device (USB – IrDA) – Requires one available USB port.
54-27-0802	TouchID™ programming kit. Includes software, programming wand, serial connector, 10 TouchID™ buttons, 10 key chain / wall mounts for buttons and 10 TouchID™ badges.
54-27-0805	10 TouchID™ buttons.
54-27-0807	10 TouchID™ key ring / wall mounts. Does not include TouchID™ buttons.
54-27-0810	10 TouchID™ badges. Does not include TouchID™ buttons.

† Computer must be equipped with infrared adapter (IrDA) to download

‡ Download software not included

PhD Lite Miscellaneous Accessories

PART NO.	DESCRIPTION
13-088	PhD Lite Reference Manual.
13-089	PhD Lite Quick Reference Card.
22-125	PhD Lite training video.
22-132	PhD Lite interactive training CD-ROM.
54-26-0302	Leather holster. For PhD Lite without pump.
54-26-0306	Leather holster. For PhD Lite with pump attached.
42-011	Wrist strap.
42-010	Shoulder Strap.

PhD Lite Calibration Materials and Carrying Cases

PART NO.	DESCRIPTION
54-26-0404	Case for Value Pack. Foam-lined case, with room for 1 compact sized calibration gas cylinder.
35-0259	Case for Confined Space Kit. Foam-lined, waterproof Pelican™ style case with room for one standard sized calibration gas cylinder.
54-26-0501	Calibration kit for PhD Lite. Includes foam-lined carrying case with room for up to three cylinders of calibration gas. Kit contains 12-023 regulator and other fittings. Kit does not include gas.
54-26-V9045	Value Pack “Make-up” Kit. Includes Value Pack case with 54-9045E calibration gas and 12-022 economy regulator. For use with O ₂ / LEL and O ₂ / LEL / CO, CO+, CO-H configurations.
54-26-V9047	Value Pack “Make-up” Kit. Includes Value Pack case with 54-9047E calibration gas and 12-023 regulator. For use with O ₂ / LEL / H ₂ S configurations.
54-26-V9049	Value Pack “Make-up” Kit. Includes Value Pack case with 54-9049E calibration gas and 12-023 regulator. For use with O ₂ / LEL / CO / H ₂ S and O ₂ / LEL / Duo-Tox (CO/H ₂ S) configurations.
54-26-0301	Sample draw / calibration adapter for PhD Lite.
54-26-0405	Calibration adapter for use with reactive gases (NH ₃ , Cl ₂ , ClO ₂ , HCN, NO ₂).

PhD⁵

Multi-Gas Detectors

PRODUCT HIGHLIGHT:

Capable of monitoring up to five gases, simultaneously.



FEATURES

DESIGN

- Rugged metal-plated, RFI-protected case.
- One button operation.
- Easy-to-read top-mounted graphic display with automatic backlight.
- Multiple languages.

OPTIONAL SLIP-ON PUMP

- Software-controlled pump.
- Powered by the PhD⁵ battery.
- Automatic low flow alarm.
- Automatic leak test before every use.

RECORDING

- Black-Box recorder with over 100 hours of storage.
- Available with optional datalogging for convenient and easy downloading to a computer.
- Available with optional patented TouchID™ for automatic user and location identification.

SMART SENSORS AND CALIBRATION

- 4 sensors: O₂, LEL and up to three toxic channels using Biosystems' Duo-Tox two channel CO/H₂S sensor (see matrix for available sensors).
- Field replaceable sensors.
- One button auto calibration.
- Calibration due reminder.
- Sensor span reserve indicators during calibration for predictive maintenance.
- IQ compatible.

BATTERIES

- Interchangeable alkaline and rechargeable (NiCad) batteries.
- Up to 12 hours battery life in either configuration.
- Drop-in fast charger / data dock.
- Recharges in less than 2 hours.

STANDARD ACCESSORIES

- Hand aspirated sample draw kit with 10' of tubing, sample probe and replacement filters.
- Leather cover with shoulder/neck strap.
- Alkaline battery pack with 3 AA batteries.
- NiCad configuration includes charger/ data dock.
- Belt clip.
- Operators guide.
- Laminated quick reference guide.
- Interactive training CD-ROM.
- Proper calibration adapter(s), based on sensor type(s).

COMPLETE

PHD⁵ INSTRUMENT KITS

CONFINED SPACE KIT

- All standard accessories.
- Standard sized (58 or 103 liter) cylinder(s) of calibration gas.
- Fixed flow regulator with gauge.
- Foam-lined waterproof carrying case.

VALUE PACK

- All standard accessories.
- Compact sized (34 liter) cylinder of all-in-one calibration gas.
- Fixed flow regulator.
- Foam-lined carrying case.

(See matrix for available value pack configurations.)

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PhD⁵ Configuration

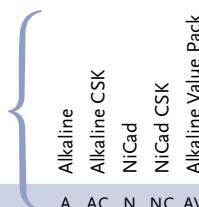
Battery and/or Kit Configuration (CSK = Confined Space Kit)

PART NUMBER	PHD ⁵ SENSORS INSTALLED	Battery and/or Kit Configuration				
		A	AC	N	NC	AV
54-24-00000	No Sensors Installed	•	•			
54-24-30000	LEL / O ₂	•	•	•	•	•
54-24-30100	LEL / O ₂ / CO	•	•	•	•	•
54-24-30500	LEL / O ₂ / CO+	•	•	•	•	•
54-24-31900	LEL / O ₂ / CO-H	•	•	•	•	•
54-24-30200	LEL / O ₂ / H ₂ S	•	•	•	•	•
54-24-30102	LEL / O ₂ / CO/H ₂ S	•	•	•	•	•
54-24-31400	LEL / O ₂ / Duo-Tox (CO / H ₂ S)	•	•	•	•	•
54-24-30300	LEL / O ₂ / SO ₂	•	•	•	•	
54-24-30103	LEL / O ₂ / CO / SO ₂	•	•	•	•	
54-24-30203	LEL / O ₂ / H ₂ S / SO ₂	•	•	•	•	
54-24-31403	LEL / O ₂ / Duo-Tox (CO / H ₂ S) / SO ₂	•	•	•	•	
54-24-31421	LEL / O ₂ / Duo-Tox / NH ₃	•	•	•	•	
54-24-31408†	LEL / O ₂ / Duo-Tox / Cl ₂ (non-specific)	•	•	•	•	
54-24-31409	LEL / O ₂ / Duo-Tox / NO ₂	•	•	•	•	
54-24-31410	LEL / O ₂ / Duo-Tox / HCN	•	•	•	•	
54-24-31412†	LEL / O ₂ / Duo-Tox / ClO ₂ (non-specific)	•	•	•	•	
54-24-31413	LEL / O ₂ / Duo-Tox / PH ₃	•	•	•	•	
54-24-31415	LEL / O ₂ / Duo-Tox / SO ₂ – Ext.	•	•	•	•	
54-24-31418†	LEL / O ₂ / Duo-Tox / Cl ₂ (specific)	•	•	•	•	
54-24-31420†‡	LEL / O ₂ / Duo-Tox / ClO ₂ (specific)	•	•			
54-24-30121	LEL / O ₂ / CO / NH ₃	•	•	•	•	
54-24-30108†	LEL / O ₂ / CO / Cl ₂ (non-specific)	•	•	•	•	
54-24-30109	LEL / O ₂ / CO / NO ₂	•	•	•	•	
54-24-30110	LEL / O ₂ / CO / HCN	•	•	•	•	
54-24-30112†	LEL / O ₂ / CO / ClO ₂ (non-specific)	•	•	•	•	
54-24-30113	LEL / O ₂ / CO / PH ₃	•	•	•	•	
54-24-30115	LEL / O ₂ / CO / SO ₂ – Ext.	•	•	•	•	
54-24-30118†	LEL / O ₂ / CO / Cl ₂ (specific)	•	•	•	•	
54-24-30120†‡	LEL / O ₂ / CO / ClO ₂ (specific)	•	•			
54-24-31921	LEL / O ₂ / CO-H / NH ₃	•	•	•	•	
54-24-31920†‡	LEL / O ₂ / CO-H / ClO ₂ (specific)	•	•			

Continued on Page 19

† The non specific Cl₂ and ClO₂ sensors can be used for the detection of both gases. The specific Cl₂ and ClO₂ sensors are designed for the target gas only.

‡ The ClO₂ specific configuration is not available in kits and requires the use of a calibration gas generator.



PhD⁵ Options

(Add option code letter to the part number.)

CODE	DESCRIPTION
A	ALKALINE
	Alkaline configurations may be upgraded to NiCad/Alkaline after purchase.
N	RECHARGEABLE
	NiCad configuration includes charger and a spare alkaline battery pack. NiCad configuration is not available in Value Pack.
C	CONFINED SPACE KIT (CSK)
	Confined Space Kits contain standard accessories, standard sized calibration gas and fixed flow rate regulator conveniently packaged in a rugged waterproof carrying case.
V	VALUE PACK
	Value Pack Kits contain standard accessories, compact sized calibration gas, fixed flow rate regulator, and foam-lined carrying case. See matrix for configurations.
D	DATALOGGING
	Enables the PhD ⁵ to record and download measurements. This option is available as an upgrade after purchase. Download software must be purchased separately (for Alkaline units specify 54-27-0605 for NiCad units specify 54-27-0603).
T	TOUCHID™
	This option includes both datalogging and TouchID™ reader. TouchID™ buttons and programming software must be purchased separately.

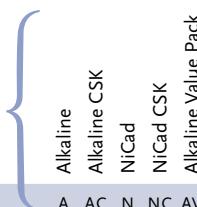
PhD⁵ Multi-Gas Detectors

PhD⁵ Configuration

Battery and/or Kit Configuration (CSK = Confined Space Kit)

PART NUMBER	PHD ⁵ SENSORS INSTALLED	Battery and/or Kit Configuration				
		A	AC	N	NC	AV
54-24-31421	LEL / O ₂ / DuoTox / NH ₃	•	•	•	•	•
54-24-31408†	LEL / O ₂ / DuoTox / Cl ₂ (non specific)	•	•	•	•	•
54-24-31409	LEL / O ₂ / DuoTox / NO ₂	•	•	•	•	•
54-24-31410	LEL / O ₂ / DuoTox / HCN	•	•	•	•	•
54-24-31412†	LEL / O ₂ / DuoTox / ClO ₂ (non specific)	•	•	•	•	•
54-24-31413	LEL / O ₂ / DuoTox / PH ₃	•	•	•	•	•
54-24-31415	LEL / O ₂ / DuoTox / SO ₂ -Ext.	•	•	•	•	•
54-24-31418†	LEL / O ₂ / DuoTox / Cl ₂ (specific)	•	•	•	•	•
54-24-31420†‡	LEL / O ₂ / DuoTox / ClO ₂ (specific)	•	•	•	•	•
54-24-30121	LEL / O ₂ / CO / NH ₃	•	•	•	•	•
54-24-30108†	LEL / O ₂ / CO / Cl ₂ (non specific)	•	•	•	•	•
54-24-30109	LEL / O ₂ / CO / NO ₂	•	•	•	•	•
54-24-30110	LEL / O ₂ / CO / HCN	•	•	•	•	•
54-24-30112†	LEL / O ₂ / CO / ClO ₂ (non specific)	•	•	•	•	•
54-24-30113	LEL / O ₂ / CO / PH ₃	•	•	•	•	•
54-24-30115	LEL / O ₂ / CO / SO ₂ -Ext.	•	•	•	•	•
54-24-30118†	LEL / O ₂ / CO / Cl ₂ (specific)	•	•	•	•	•
54-24-30120†‡	LEL / O ₂ / CO / ClO ₂ (specific)	•	•	•	•	•
54-24-31921	LEL / O ₂ / CO-H / NH ₃	•	•	•	•	•
54-24-31920†‡	LEL / O ₂ / CO-H / ClO ₂ (specific)	•	•	•	•	•
54-24-30521	LEL / O ₂ / CO+ / NH ₃	•	•	•	•	•
54-24-30508†	LEL / O ₂ / CO+ / Cl ₂ (non specific)	•	•	•	•	•
54-24-30509	LEL / O ₂ / CO+ / NO ₂	•	•	•	•	•
54-24-30510	LEL / O ₂ / CO+ / HCN	•	•	•	•	•
54-24-30512†	LEL / O ₂ / CO+ / ClO ₂ (non specific)	•	•	•	•	•
54-24-30513	LEL / O ₂ / CO+ / PH ₃	•	•	•	•	•
54-24-30515	LEL / O ₂ / CO+ / SO ₂ -Ext.	•	•	•	•	•
54-24-30518†	LEL / O ₂ / CO+ / Cl ₂ (specific)	•	•	•	•	•
54-24-30520†‡	LEL / O ₂ / CO+ / ClO ₂ (specific)	•	•	•	•	•
54-24-30221	LEL / O ₂ / H ₂ S / NH ₃	•	•	•	•	•
54-24-30208†	LEL / O ₂ / H ₂ S / Cl ₂ (non specific)	•	•	•	•	•
54-24-30209	LEL / O ₂ / H ₂ S / NO ₂	•	•	•	•	•
54-24-30210	LEL / O ₂ / H ₂ S / HCN	•	•	•	•	•
54-24-30212†	LEL / O ₂ / H ₂ S / ClO ₂ (non specific)	•	•	•	•	•
54-24-30213	LEL / O ₂ / H ₂ S / PH ₃	•	•	•	•	•
54-24-30215	LEL / O ₂ / H ₂ S / SO ₂ -Ext.	•	•	•	•	•
54-24-30218†	LEL / O ₂ / H ₂ S / Cl ₂ (specific)	•	•	•	•	•
54-24-30219	LEL / O ₂ / H ₂ S / CO-H	•	•	•	•	•
54-24-30220†‡	LEL / O ₂ / H ₂ S / ClO ₂ (specific)	•	•	•	•	•

Continued on Page 20



Most Common PhD⁵ Accessories

PART NO.	DESCRIPTION
54-27-0101	Continuous sample pump for PhD ⁵ , slip-on. Includes 10' tubing and sample probe assembly.
54-27-0101-C	Continuous sample pump for PhD ⁵ , slip-on – Configured for reactive gas detection, such as Cl ₂ , and ClO ₂ . Includes 10' of inert tubing and sample probe assembly.
54-27-0603	PhD ⁵ BioTrak Software Kit. Includes computer cable, software and manual.
54-27-0605	PhD ⁵ Datalink Kit. Includes download cradle, BioTrak software, computer cable and manual.
54-27-0802	TouchID™ programming kit. Includes software, programming wand, serial connector, 10 TouchID™ buttons, 10 key chain / wall mounts for buttons and 10 TouchID™ badges.

PhD⁵ Configuration

Battery and/or Kit Configuration (CSK = Confined Space Kit)

PART NUMBER	PHD ⁵ SENSORS INSTALLED	A	AC	N	NC	AV
54-24-30321	LEL / O ₂ / SO ₂ / NH ₃	•	•	•	•	•
54-24-30305	LEL / O ₂ / SO ₂ / CO+	•	•	•	•	•
54-24-30308†	LEL / O ₂ / SO ₂ / Cl ₂ (non specific)	•	•	•	•	•
54-24-30309	LEL / O ₂ / SO ₂ / NO ₂	•	•	•	•	•
54-24-30310	LEL / O ₂ / SO ₂ / HCN	•	•	•	•	•
54-24-30312†	LEL / O ₂ / SO ₂ / ClO ₂ (non specific)	•	•	•	•	•
54-24-30313	LEL / O ₂ / SO ₂ / PH ₃	•	•	•	•	•
54-24-30318†	LEL / O ₂ / SO ₂ / Cl ₂ (specific)	•	•	•	•	•
54-24-30319	LEL / O ₂ / SO ₂ / CO-H	•	•	•	•	•
54-24-30320†‡	LEL / O ₂ / SO ₂ / ClO ₂ (specific)	•	•	•		
54-24-30321	LEL / O ₂ / SO ₂ / NH ₃	•	•	•	•	•
54-24-30800†	LEL / O ₂ / Cl ₂ (non specific)	•	•	•	•	•
54-24-30821†	LEL / O ₂ / Cl ₂ (non specific) / NH ₃	•	•	•	•	•
54-24-30809†	LEL / O ₂ / Cl ₂ (non specific) / NO ₂	•	•	•	•	•
54-24-30810†	LEL / O ₂ / Cl ₂ (non specific) / HCN	•	•	•	•	•
54-24-30813†	LEL / O ₂ / Cl ₂ (non specific) / PH ₃	•	•	•	•	•
54-24-30815†	LEL / O ₂ / Cl ₂ (non specific) / SO ₂ -Ext.	•	•	•	•	•
54-24-30819†	LEL / O ₂ / Cl ₂ (non specific) / CO-H	•	•	•	•	•
54-24-30900	LEL / O ₂ / NO ₂	•	•	•	•	•
54-24-30921	LEL / O ₂ / NO ₂ / NH ₃	•	•	•	•	•
54-24-30910	LEL / O ₂ / NO ₂ / HCN	•	•	•	•	•
54-24-30912†	LEL / O ₂ / NO ₂ / ClO ₂ (non specific)	•	•	•	•	•
54-24-30913	LEL / O ₂ / NO ₂ / PH ₃	•	•	•	•	•
54-24-30915	LEL / O ₂ / NO ₂ / SO ₂ -Ext.	•	•	•	•	•
54-24-30918†	LEL / O ₂ / NO ₂ / Cl ₂ (specific)	•	•	•	•	•
54-24-30919	LEL / O ₂ / NO ₂ / CO-H	•	•	•	•	•
54-24-30920†‡	LEL / O ₂ / NO ₂ / ClO ₂ (specific)	•	•	•		
54-24-31000	LEL / O ₂ / HCN	•	•	•	•	•
54-24-31012†	LEL / O ₂ / HCN / ClO ₂ (non specific)	•	•	•	•	•
54-24-31015	LEL / O ₂ / HCN / SO ₂ -Ext.	•	•	•	•	•
54-24-31018†	LEL / O ₂ / HCN / Cl ₂ (specific)	•	•	•	•	•
54-24-31019	LEL / O ₂ / HCN / CO-H	•	•	•	•	•
54-24-31020†‡	LEL / O ₂ / HCN / ClO ₂ (specific)	•	•	•		

Continued on Page 21

† The non specific Cl₂ and ClO₂ sensors can be used for the detection of both gases. The specific Cl₂ and ClO₂ sensors are designed for the target gas only.

‡ The ClO₂ specific configuration is not available in kits and requires the use of a calibration gas generator.



PhD⁵ Remote Accessories

PART NO.	DESCRIPTION
54-27-0101	Continuous sample pump for PhD ⁵ , slip-on. Includes 10' tubing and sample probe assembly.
54-27-0101-C	Continuous sample pump for PhD ⁵ , slip-on – Configured for reactive gas detection, such as Cl ₂ and ClO ₂ . Includes 10' of inert tubing and sample probe assembly.
54-27-0102	Continuous sample pump for PhD ⁵ , screw on. Includes 10' tubing and sample probe assembly.
54-27-0102-C	Continuous sample pump for PhD ⁵ , screw-on – Configured for reactive gas detection, such as Cl ₂ and ClO ₂ . Includes 10' of inert tubing and sample probe assembly.
35-0344	Tubing kit for reactive gas detection (Cl ₂ and ClO ₂). Includes 10' of tubing plus adapters.
54-05-A0401	Sample draw kit for PhD ⁵ . Includes adapter, squeeze bulb, 10' of tubing and sample probe assembly. Not for use with Cl ₂ and ClO ₂ .
54-05-A0403	Sample probe assembly. Does not include tubing, squeeze bulb, or sample draw adapter.
54-05-A0405	Sample probe assembly with 11.5-inch stainless-steel probe tube. Does not include tubing, squeeze bulb, or sample draw adapter.
10-263	Sample draw/calibration adapter for PhD ⁵ .

PhD⁵ Configuration

Battery and/or Kit Configuration (CSK = Confined Space Kit)

PART NUMBER	PHD ⁵ SENSORS INSTALLED	A AC N NC AV				
		Alkaline	Alkaline CSK	NiCad	NiCad CSK	Alkaline Value Pack
54-24-31221†	LEL / O ₂ / ClO ₂ (non specific) / NH ₃	•	•	•	•	•
54-24-31200†	LEL / O ₂ / ClO ₂ (non specific)	•	•	•	•	•
54-24-31213†	LEL / O ₂ / ClO ₂ (non specific) / PH ₃	•	•	•	•	•
54-24-31215†	LEL / O ₂ / ClO ₂ (non specific) / SO ₂ -Ext.	•	•	•	•	•
54-24-31219†	LEL / O ₂ / ClO ₂ (non specific) / CO-H	•	•	•	•	•
54-24-31300	LEL / O ₂ / PH ₃	•	•	•	•	•
54-24-31315	LEL / O ₂ / PH ₃ / SO ₂ -Ext.	•	•	•	•	•
54-24-31318†	LEL / O ₂ / PH ₃ / Cl ₂ (specific)	•	•	•	•	•
54-24-31319	LEL / O ₂ / PH ₃ / CO-H	•	•	•	•	•
54-24-31320†‡	LEL / O ₂ / PH ₃ / ClO ₂ (specific)	•	•	•	•	•
54-24-31500	LEL / O ₂ / SO ₂ -Ext.	•	•	•	•	•
54-24-31521	LEL / O ₂ / SO ₂ -Ext. / NH ₃	•	•	•	•	•
54-24-31518†	LEL / O ₂ / SO ₂ -Ext. / Cl ₂ (specific)	•	•	•	•	•
54-24-31519	LEL / O ₂ / SO ₂ -Ext. / CO-H	•	•	•	•	•
54-24-31520†‡	LEL / O ₂ / SO ₂ -Ext. / ClO ₂ (specific)	•	•	•	•	•
54-24-31800†	LEL / O ₂ / Cl ₂ (specific)	•	•	•	•	•
54-24-31821†	LEL / O ₂ / Cl ₂ (specific) / NH ₃	•	•	•	•	•
54-24-31819†	LEL / O ₂ / Cl ₂ (specific) / CO-H	•	•	•	•	•
54-24-31820†‡	LEL / O ₂ / Cl ₂ (specific) / ClO ₂ (specific)	•	•	•	•	•
54-24-32000†‡	LEL / O ₂ / ClO ₂ (specific)	•	•	•	•	•
54-24-32021†‡	LEL / O ₂ / ClO ₂ (specific) / NH ₃	•	•	•	•	•
54-24-32100	LEL / O ₂ / NH ₃	•	•	•	•	•

† The non specific Cl₂ and ClO₂ sensors can be used for the detection of both gases. The specific Cl₂ and ClO₂ sensors are designed for the target gas only.

‡ The ClO₂ specific configuration is not available in kits and requires the use of a calibration gas generator.

Please refer to the PhD⁵ Smart Sensor matrix on page 22 for more detailed sensor information.

PhD⁵ Charging, Datalogging and TouchID™ Accessories

PART NO.	DESCRIPTION
54-27-0205	Slip-in fast charger (110 VAC) for PhD ⁵ . Includes "wall cube" power supply.
54-27-0201	Slip-in fast charger / data dock (110 VAC) for PhD ⁵ . Includes "wall cube" power supply.
54-27-0202	Slip-in fast charger (12 VDC) for PhD ⁵ . Includes 12 VDC "cigarette lighter" style adapter, and vehicle mounting hardware.
54-27-0204	Five instrument 110 VAC slip-in multi-charger for PhD ⁵ . Includes power supply.
35-0219	Alkaline battery pack for PhD ⁵ .
35-0214	NiCad battery pack for PhD ⁵ .
54-27-0601‡	Datalogger upgrade for PhD ⁵ without "Black-Box" recorder. (Requires instrument disassembly.) (If your non-datalogging PhD ⁵ shows the time and date during startup, it does include a "Black-Box" recorder.)
54-27-0607‡	Datalogger upgrade for PhD ⁵ with "Black-Box" recorder. (If your non-datalogging PhD ⁵ shows the time and date during startup, it does include a "Black-Box" recorder.)
54-27-0603	BioTrak Software Kit. Includes computer cable, software and manual.
54-27-0605	PhD ⁵ Datalink Kit. Includes download cradle, BioTrak software, computer cable and manual.
54-27-0802	TouchID™ programming kit. Includes software, programming wand, serial connector, 10 buttons, 10 key chain / wall mounts for TouchID™ buttons and 10 TouchID™ badges.
54-27-0805	10 TouchID™ buttons.
54-27-0807	10 TouchID™ key ring / wall mounts. Does not include TouchID™ buttons.
54-27-0810	10 TouchID™ badges. Does not include TouchID™ buttons.

‡ Download software not included.

PhD⁵ Multi-Gas Detectors

PhD⁵ Smart Sensors

PART NUMBER	DESCRIPTION	RANGE	RESOLUTION
54-25-80A	LEL	Combustible gas	0 – 100% LEL
54-04-90	O ₂	Oxygen	0 – 30% / Vol.
54-25-01	CO	Carbon Monoxide	0 – 1000 PPM
54-25-05	CO+	CO Plus dual purpose CO/H ₂ S (provides a non-specific readout for CO and H ₂ S)	CO: 0 – 1000 PPM H ₂ S: 0 – 200 PPM
54-25-19	CO-H	CO Minus, reduced sensitivity to H ₂	0 – 1000 PPM
54-25-02	H ₂ S	Hydrogen Sulfide	0 – 200 PPM
54-25-14	Duo-Tox	Dual Channel CO/H ₂ S (provides substance specific readouts for CO and H ₂ S)	CO: 0 – 1000 PPM H ₂ S: 0 – 200 PPM
54-25-03	SO ₂	Sulfur Dioxide	0 – 25 PPM
54-25-15	SO ₂ -Ext.	Sulfur Dioxide extended range	0 – 100 PPM
54-25-04†	NH ₃	Ammonia (for software versions prior to 2.0)	0 – 50 PPM
54-25-21†	NH ₃	Ammonia	0 – 100 PPM
54-25-08† ††	Cl ₂	Chlorine (non-specific)	0 – 50 PPM
54-25-18† ††	Cl ₂	Chlorine (specific)	0 – 50 PPM
54-25-12† ††	ClO ₂	Chlorine Dioxide (non-specific)	0 – 15 PPM
54-25-20	ClO ₂	Chlorine Dioxide (specific)	0 – 5 PPM
54-25-06	NO	Nitric Oxide	0 – 350 PPM
54-25-09†	NO ₂	Nitrogen Dioxide	0 – 50 PPM
54-25-10†	HCN	Hydrogen Cyanide	0 – 100 PPM
54-25-13	PH ₃	Phosphine	0 – 20 PPM
			0.1 PPM

† Special reactive gas calibration adapter (54-05-A0409) required for proper calibration.

†† The non-specific Cl₂ and ClO₂ sensors can be used for the detection of both gases.
The specific Cl₂ and ClO₂ sensors are designed for the target gas only.

PhD⁵ Miscellaneous Accessories

PART NO.	DESCRIPTION
13-092	PhD ⁵ Reference Manual.
13-093	PhD ⁵ Quick Reference Card.
22-130	PhD ⁵ training video.
22-131	PhD ⁵ interactive training CD-ROM.
42-005	Shoulder strap for PhD ⁵ .
45-016	Leather weather cover for PhD ⁵ .
56-282	Leather weather cover for PhD ⁵ with TouchID™.

PhD⁵ Calibration Materials and Carrying Cases

PART NO.	DESCRIPTION
54-27-0401	Case for Value Pack. Foam-lined case, with room for 1 compact sized calibration gas cylinder.
35-0002	Case for Confined Space Kit. Foam-lined, waterproof Pelican™ style case with room for one standard sized calibration gas cylinder.
54-27-0501	Calibration kit for PhD ⁵ . Includes foam-lined carrying case with room for up to three cylinders of calibration gas. Kit contains 12-023 regulator and other fittings. Kit does not include gas.
54-27-V9045	Value Pack "Make-up" Kit. Includes Value Pack case with 54-9045E calibration gas and 12-022 regulator. For use with O ₂ / LEL; O ₂ / LEL / CO and O ₂ / LEL / CO+ configurations.
54-27-V9047	Value Pack "Make-up" Kit. Includes Value Pack case with 54-9047E calibration gas and 12-023 regulator. For use with O ₂ / LEL / H ₂ S configurations.
54-27-V9049	Value Pack "Make-up" Kit. Includes Value Pack case with 54-9049E calibration gas and 12-023 regulator. For use with O ₂ / LEL / CO / H ₂ S and O ₂ / LEL / Duo-Tox (CO / H ₂ S) configurations.
10-263	Sample draw / calibration adapter for PhD ⁵ .
54-05-A0409	Calibration adapter for use with reactive gases (NH ₃ , Cl ₂ , ClO ₂ , HCN, NO ₂).

Cannonball3

Continuous Sample Draw Multi-Gas Detectors

PRODUCT HIGHLIGHT:

Patented, sample draw pump with easy field maintenance.



FEATURES

DESIGN

- Rugged RFI-protected case designed for the most demanding environments.
- IPX5 rated protection against dust and water.
- One button operation.
- Oversized (5" diagonal) backlit graphic display with automatic backlight.
- Super bright alarm lights visible in any direction.
- Multiple languages.

PUMPS

- Field replaceable pump module.
- Available with dual pumps for accurate dilution monitoring in inert environments without the use of a dilution orifice.
- Dilution calibration regardless of tube length.
- Automatic low flow alarm.
- Automatic leak test before every use.

RECORDING

- Black-Box recorder with over 100 hours of storage.
- Available with optional datalogging for convenient and easy downloading to a computer.

FEATURES (continued)

SMART SENSORS AND CALIBRATION

- Four sensors. O₂, LEL and up to three toxic channels using Biosystems' Duo-Tox two channel CO/H₂S sensor (see matrix for available sensors).
- User replaceable sensors.
- One button auto calibration.
- Calibration due reminder.
- Sensor span reserve indicators during calibration for predictive maintenance.
- HC-PPM sensor.
- IQ compatible.

BATTERIES

- Interchangeable Alkaline (5 "D"-cell) and rechargeable (NiMH) batteries.
- Operating life:
 - Alkaline: Up to 24 hours.
 - NiMH: Up to 16 hours.
- Snap-on fast charger included with rechargeable (NiMH) configuration.
- Recharges in 4 hours.

STANDARD ACCESSORIES

- Built-in sample draw pump.
- Remote sampling probe with 10' of tubing and QD (quick disconnect) fittings.
- Shoulder strap.
- Rechargeable NiMH version includes charger.
- Operators guide.
- Quick reference guide.
- Training video.

Cannonball3 Continuous Sample Draw Multi-Gas Detectors

Cannonball3 Configuration Standard Version (1 Pump)

Battery and/or Kit Configuration (CSK = Confined Space Kit)

PART NUMBER	CANNONBALL3 SENSORS INSTALLED	A	N
54-34-00000	No Sensors Installed	•	•
54-34-30000	LEL / O ₂	•	•
54-34-30100	LEL / O ₂ / CO	•	•
54-34-31900	LEL / O ₂ / CO-H	•	•
54-34-30200	LEL / O ₂ / H ₂ S	•	•
54-34-31400	LEL / O ₂ / Duo-Tox (CO/H ₂ S)	•	•
54-34-30102	LEL / O ₂ / CO / H ₂ S	•	•
54-34-30300†	LEL / O ₂ / SO ₂	•	•
54-34-30103†	LEL / O ₂ / CO / SO ₂	•	•
54-34-30203†	LEL / O ₂ / H ₂ S / SO ₂	•	•
54-34-31403†	LEL / O ₂ / Duo-Tox (CO/H ₂ S) / SO ₂	•	•
54-34-31500†	LEL / O ₂ / SO ₂ Ext.	•	•
54-34-32100	LEL / O ₂ / NH ₃	•	•
54-34-30800	LEL / O ₂ / Cl ₂ (non-specific)	•	•
54-34-31800	LEL / O ₂ / Cl ₂ (specific)	•	•
54-34-31200	LEL / O ₂ / ClO ₂ (non-specific)	•	•
54-34-32000	LEL / O ₂ / ClO ₂ (specific)	•	•
54-34-30900	LEL / O ₂ / NO ₂	•	•
54-34-50000	HC-PPM LEL / O ₂	•	•
54-34-50100	HC-PPM LEL / O ₂ / CO	•	•
54-34-51400	HC-PPM LEL / O ₂ / Duo-Tox (CO/H ₂ S)	•	•
54-34-50102	HC-PPM LEL / O ₂ / CO / H ₂ S	•	•

† The detection range of the standard SO₂ sensor is 0.0 – 25 PPM in 0.1 PPM increments.
The detection range of the extended range SO₂ sensor is 0 – 150 PPM in 1 PPM increments.

Please refer to the Cannonball3 Smart Sensor matrix on page 26 for more detailed sensor information.

Call Biosystems for additional sensor combinations.

Alkaline
NiMH

Cannonball3 Options

(Add option code letter to the part number.)

CODE	DESCRIPTION
A	ALKALINE
	NiMH battery pack and charger may be purchased separately.
N	RECHARGEABLE
	NiMH configuration includes charger. Alkaline battery packs may be purchased separately.
D	DATALOGGING
	Enables the Cannonball3 to record and download measurements. This option is available as an upgrade after purchase. Download software must be purchased separately. Computer must support IrDA to download.
T	TOUCHID™
	This option includes both datalogging and TouchID™ reader. TouchID™ buttons and programming software must be purchased separately.

Cannonball3 Continuous Sample Draw Multi-Gas Detectors

Cannonball3 Configuration Dilution Version (2 Pumps)‡

Battery and/or Kit Configuration (CSK = Confined Space Kit)

PART NUMBER	CANNONBALL3 SENSORS INSTALLED	A N	
		Alkaline	NiMH
54-35-00000	No Sensors Installed	• •	
54-35-30000	LEL / O ₂	• •	
54-35-30100	LEL / O ₂ / CO	• •	
54-35-31900	LEL / O ₂ / CO-H	• •	
54-35-30200	LEL / O ₂ / H ₂ S	• •	
54-35-31400	LEL / O ₂ / Duo-Tox (CO/H ₂ S)	• •	
54-35-30102	LEL / O ₂ / CO / H ₂ S	• •	
54-35-30300†	LEL / O ₂ / SO ₂	• •	
54-35-30103†	LEL / O ₂ / CO / SO ₂	• •	
54-35-30203†	LEL / O ₂ / H ₂ S / SO ₂	• •	
54-35-31403†	LEL / O ₂ / Duo-Tox (CO/H ₂ S) / SO ₂	• •	
54-35-31500†	LEL / O ₂ / SO ₂ Ext.	• •	
54-35-32100	LEL / O ₂ / NH ₃	• •	
54-35-30800	LEL / O ₂ / Cl ₂ (non-specific)	• •	
54-35-31800	LEL / O ₂ / Cl ₂ (specific)	• •	
54-35-31200	LEL / O ₂ / ClO ₂ (non-specific)	• •	
54-35-32000	LEL / O ₂ / ClO ₂ (specific)	• •	
54-35-30900	LEL / O ₂ / NO ₂	• •	
54-35-50000*	HC-PPM LEL / O ₂	• •	
54-35-50100*	HC-PPM LEL / O ₂ / CO	• •	
54-35-51400*	HC-PPM LEL / O ₂ / Duo-Tox (CO/H ₂ S)	• •	
54-35-50102*	HC-PPM LEL / O ₂ / CO / H ₂ S	• •	

† The detection range of the standard SO₂ sensor is 0.0 – 25 PPM in 0.1 PPM increments.

The detection range of the extended range SO₂ sensor is 0 – 150 PPM in 1 PPM increments.

‡ The dilution version of the Cannonball3 allows for accurate gas detection in inert environments without the use of a dilution orifice.

* The HC-PPM sensor will only function in LEL mode while the dilution pump is on.

Call Biosystems for additional sensor combinations.

Cannonball3 Options

(Add option code letter to the part number.)

CODE DESCRIPTION
A ALKALINE
NiMH battery pack and charger may be purchased separately.
N RECHARGEABLE
NiMH configuration includes charger. Alkaline battery packs may be purchased separately.
D DATALOGGING
Enables the Cannonball3 to record and download measurements. This option is available as an upgrade after purchase. Download software must be purchased separately. Computer must support IrDA to download.
T TOUCHID™
This option includes both datalogging and TouchID™ reader. TouchID™ buttons and programming software must be purchased separately.

Cannonball3 Continuous Sample Draw Multi-Gas Detectors

Cannonball3 Smart Sensors

PART NUMBER	DESCRIPTION	RANGE	RESOLUTION
54-25-80	LEL	Combustible Gas	0 – 100% LEL 1% LEL
54-25-70	LEL	Combustible Gas	0 – 100% LEL 1% LEL
54-25-71	HC-PPM LEL	Combustible Gas	0 – 100% LEL see note*
54-25-90	O ₂	Oxygen	0 – 30% / Vol. 0.1%
54-25-01	CO	Carbon Monoxide	0 – 1000 PPM 1 PPM
54-25-05	CO+	CO Plus dual purpose CO/H ₂ S (provides a non-specific readout for CO and H ₂ S)	CO: 0 – 1000 PPM 1 PPM H ₂ S: 0 – 200 PPM 1 PPM
54-25-19	CO-H	CO Minus, reduced sensitivity to H ₂	0 – 1000 PPM 1 PPM
54-25-02	H ₂ S	Hydrogen Sulfide	0 – 200 PPM 1 PPM
54-25-14	Duo-Tox	Dual Channel CO/H ₂ S (provides Substance specific readouts for CO and H ₂ S)	CO: 0 – 1000 PPM 1 PPM H ₂ S: 0 – 200 PPM 1 PPM
54-25-03	SO ₂	Sulfur Dioxide	0 – 25 PPM 0.1 PPM
54-25-15	SO ₂ -Ext.	Sulfur Dioxide extended range	0 – 100 PPM 1 PPM
54-25-21†	NH ₃	Ammonia	0 – 100 PPM 1 PPM
54-25-08† ††	Cl ₂	Chlorine (non-specific)	0 – 50 PPM 0.1 PPM
54-25-18† ††	Cl ₂	Chlorine (specific)	0 – 50 PPM 0.1 PPM
54-25-12† ††	ClO ₂	Chlorine Dioxide (non-specific)	0 – 15 PPM 0.1 PPM
54-25-20	ClO ₂	Chlorine Dioxide (specific)	0 – 5 PPM 0.01 PPM
54-25-09†	NO ₂	Nitrogen Dioxide	0 – 50 PPM 0.1 PPM
54-25-13	PH ₃	Phosphine	0 – 20 PPM 0.1 PPM
54-25-06	NO	Nitric Oxide	0 – 350 PPM 1 PPM

† Special reactive gas calibration adapter (54-36-16) required for proper calibration. Inert tubing is required for proper calibration and remote sampling.

†† The non-specific Cl₂ and ClO₂ sensors can be used for the detection of both gases.
The specific Cl₂ and ClO₂ sensors are designed for the target gas only.

*HC PPM LEL Sensor Range

RANGE	RESOLUTION
0 – 9999 PPM	10 PPM
1 – 9.99% Vol	.01% / Vol

% / Vol range is dependent on calibration scale.

Most Common Cannonball3 Accessories

PART NO.	DESCRIPTION
35-0379	Cannonball3 motorized sample draw pump module.
35-0378	Cannonball3 motorized sample draw pump module for dual pump version (2 pumps). The Cannonball3 must be configured for dual pump.
35-0376	Cannonball3 Alkaline battery pack ("D"-Cell batteries not included).
35-0377	Cannonball3 NiMH battery pack.
54-26-0603†	Cannonball3 BioTrak Software Kit. Includes BioTrak software and manual.
54-26-0605S	Infrared communication device (Serial – IrDA) – Requires one available PC serial port.
54-26-0605U	Infrared communication device (USB – IrDA) – Requires one available USB port.
54-27-0802	TouchID™ programming kit. Includes software, programming wand, serial connector, 10 buttons, 10 key chain / wall mounts for TouchID™ buttons and 10 TouchID™ badges.

† PC must support IrDA to download.

Cannonball3 Continuous Sample Draw Multi-Gas Detectors

Cannonball3 Remote Accessories

PART NO.	DESCRIPTION
35-0379	Cannonball3 motorized sample draw pump.
35-0378	Cannonball3 motorized sample draw pumps for dual pump version. The Cannonball3 must be configured for dual pump.
54-36-03	Cannonball3 Sample probe with plastic extension and male quick disconnect.
54-36-04	Cannonball3 Sample probe with stainless steel extension and male quick disconnect.
54-36-05	Cannonball3 Sample probe with plastic extension and threaded for quick disconnect fitting.
54-36-06	Cannonball3 Sample probe with stainless steel extension and threaded for quick disconnect fitting.
54-36-07	Cannonball3 Sample probe male quick disconnect.
54-36-08-010	Cannonball3 Extension hose, 10 feet with male and female quick disconnect.
54-36-08-025	Cannonball3 Extension hose, 25 feet with male and female quick disconnect.
54-36-08-050	Cannonball3 Extension hose, 50 feet with male and female quick disconnect.
54-36-08-100	Cannonball3 Extension hose, 100 feet with male and female quick disconnect.
54-36-09	Cannonball3 set of male and female quick disconnects.

Cannonball3 Charging, Datalogging and TouchID™ Accessories

PART NO.	DESCRIPTION
54-36-10	Cannonball3 Snap-on fast charger (110VAC).
54-36-11	Cannonball3 Snap-on fast charger (12VDC).
35-0376	Cannonball3 Alkaline battery pack (batteries not included).
35-0377	Cannonball3 NiMH battery pack.
54-36-13†‡	Cannonball3 Datalogger upgrade.
54-26-0603†	Cannonball3 BioTrak Software Kit. Includes BioTrak software and manual.
54-26-0605S	Infrared communication device (Serial – IrDA) - Requires one available PC serial port.
54-26-0605U	Infrared communication device (USB – IrDA) - Requires one available USB port.
54-27-0802	TouchID™ programming kit. Includes software, programming wand, serial connector, 10 buttons, 10 key chain / wall mounts for TouchID™ buttons and 10 TouchID™ badges.
54-27-0805	10 TouchID™ buttons.
54-27-0807	10 TouchID™ key ring / wall mounts. Does not include TouchID™ buttons.
54-27-0810	10 TouchID™ badges. Does not include TouchID™ buttons.

† Computer must be equipped with infrared adapter (IrDA) to download.

‡ Download software not included.

Miscellaneous Accessories

PART NO.	DESCRIPTION
13-173	Cannonball3 Reference Manual.
31-292	Cannonball3 Quick Reference Label.
22-143	Cannonball3 Training Video.
42-002	Cannonball3 Shoulder strap.
54-36-20	Cannonball3 Gasket service kit. Includes 6 filter gaskets, 2 pump gasket, 2 battery gasket and lubricant for gaskets.
54-36-17	Internal filter kit for Cannonball3. (10 ea. particulate and 5 ea. hydrophobic).

Cannonball3 Calibration Materials and Carrying Cases

PART NO.	DESCRIPTION
54-36-14	Cannonball3 Calibration kit. Includes foam-lined carrying case with room for up to three cylinders of calibration gas. Kit contains 12-023 regulator and other fittings. Kit does not include gas.
35-0453	Cannonball3 Waterproof Pelican™ style carrying case with room for one Cannonball3 and one cylinder of calibration gas.
54-36-15	Cannonball3 Calibration tube with male quick disconnect.
54-36-18	Cannonball3 Calibration balloon (not for use with Cl ₂ and ClO ₂).
54-36-16	Cannonball3 Inert calibration tube (for reactive gases) with male quick disconnect.

IQ Express Docking Station

PRODUCT HIGHLIGHT:



The IQ Express Docking

Station is an automatic calibration station and data download center for the ToxiPro, and ToxiLtd sensor gas detectors. Just drop the detector into the IQ Express for automatic maintenance in as little as 20 seconds.

FEATURES

AUTOMATED TESTS

- Automatic Instrument Identification
- Automatic Battery Test
- Automatic Alarm Tests (audible, visible, vibrating)
- Automatic Bump Test
- Automatic Calibration (if necessary)
- Automatic Record Keeping
- Automatic Ready / Fault Indication

SINGLE OR MULTIPLE DOCKS

- Connect between 1 and 4 docks by USB

CONFIGURATION OPTIONS

- Standalone calibration station
- Connected to PC via USB
- Network compatible

PC CONTROL

- Connect to a PC for enhanced control over calibration and data acquisition during testing.

EFFICIENT AND ECONOMICAL

- Bump test in under 20 seconds
- Calibration in under 1 minute

IQ Express Descriptions

PART NO.	DESCRIPTION
54-46-9000	IQ Express Docking Station for O ₂ , CO, H ₂ S, SO ₂ with Software, Installation Disks, and Manuals.
54-46-9000N	Network Compatible.
54-46-9100	Enhanced IQ Express Docking Station for O ₂ , CO, H ₂ S, SO ₂ , Cl ₂ , NO ₂ , NH ₃ , HCN, PH ₃ with Software, Installation Disks, and Manuals.
54-46-9100N	Network Compatible.
54-46-8000	Mounting Bracket.
54-46-8001	Powered Mounting Bracket.

MultiPro IQ Express Docking Station

PRODUCT HIGHLIGHT:

The MultiPro IQ Express Docking Station is an automatic calibration station and data download center for the MultiPro gas detector. Just place the detector in the dock and the MultiPro IQ Express does the rest.



FEATURES

AUTOMATED TESTS

- Automatic Instrument Identification
- Automatic Battery Test
- Automatic Alarm Tests (audible, visible, vibrating)
- Automatic Bump Test
- Automatic Calibration (if necessary)
- Automatic Record Keeping
- Automatic Ready / Fault Indication

SINGLE OR MULTIPLE DOCKS

- Cascade between 1 and 4 docks

CONFIGURATION OPTIONS

- Standalone calibration station
- Connected to PC via USB
- Network compatible

PC CONTROL

- Connect to a PC for enhanced control over calibration and data acquisition during testing.

EFFICIENT AND ECONOMICAL

- Bump test in under 30 seconds
- Calibration in about 1 minute

IQ Express Descriptions

PART NO.	DESCRIPTION
54-49-9000	MultiPro IQ Express Dock with Software, Installation Disks and Manual.

IQ Docking Station



FEATURES

HANDS-FREE MAINTENANCE

- Automatic hands-free unattended calibration.
- Automatic instrument configuration, record keeping, data download and battery charging.
- Automatic tracking of instrument readings, calibration data and sensor performance trends.
- Automatic Ready / Fault indication.
- All features and schedules are user definable.

FLEXIBLE DATABASE MANAGEMENT SYSTEM

- Easy access to stored records.
- Built-in report generator and e-mail capability.

MULTIPLE TYPES OF INSTRUMENTS

- Supports PhD Lite, PhD⁵, PhD Ultra, MultiVision (datalogging version), MultiPro and Cannonball3.
- Up to 10 docks per controller, any combination.

MULTIPLE GAS INPUTS

- 3 gas inputs standard (including fresh air).
- Additional blocks of solenoids available for up to 12 gas inputs (3 gas inputs per block).

NETWORK CAPABLE

- Multiple IQ Systems on the same network.
- Data retrieval across network.

PRODUCT HIGHLIGHT:

Instrument and data management system that automates the maintenance of your Biosystems detectors.

IQ Controller and Dock

PART NO.	DESCRIPTION
54-43-0x0yz	IQ Controller with IQ controller software, installation disks and manuals. Please complete part number using the IQ Controller options matrix below. Note some options affect the price of the controller.
54-43-201	IQ Database Manager software. Note this software is included with the IQ Controller above.
54-43-1401†‡	IQ Dock for MultiVision.
54-43-1231†	IQ Dock for PhD Lite.
54-43-1241	IQ Dock for PhD ⁵ .
54-43-1341†	IQ Dock for Cannonball3.
54-43-1481†	IQ Dock for MultiPro.
54-43-1021	IQ Dock for PhD Ultra.

† Requires IrDA support at controller – see IQ Controller options

‡ MultiVision must have fully enabled data-logger to be IQ compatible

IQ Controller Options

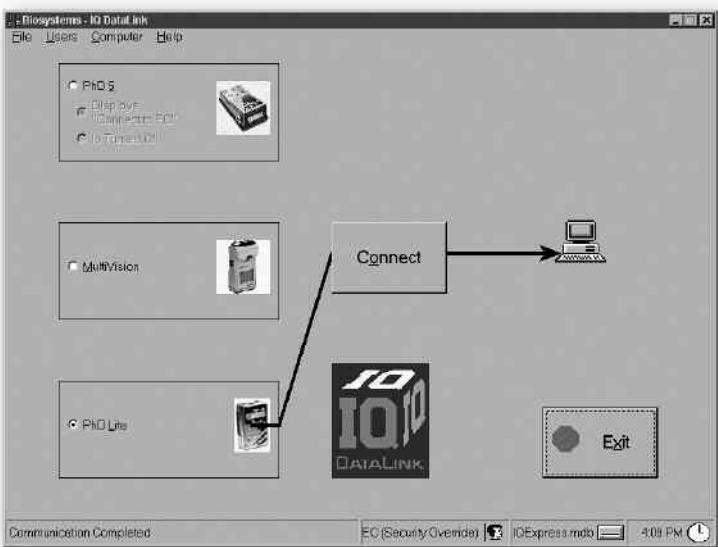
(Add option code letter to the part number.)

PART NO. / CODE	OPTION
X = 2nd Digit	Blocks of Solenoids (3 inputs per block)
Code: 1	1 Block (3 Gas Inputs)
Code: 2	2 Blocks (6 Gas Inputs)
Code: 3	3 Blocks (9 Gas Inputs)
Code: 4	4 Blocks (12 Gas Inputs)
Y = 4th Digit	Power Supply / Cord
Code: 0	110V / North America
Code: 1	220V / Continental Europe and China
Code: 2	220V / Britain
Code: 3	220V / Australia (...others may be added)
Z = 5th Digit	IrDA Support
Code: 0	No IrDA support
Code: 1	IrDA support (IrDA support is required for the PhD Lite, Cannonball3, MultiVision and MultiPro.)

IQ Datalink System

PRODUCT HIGHLIGHT:

The IQ Datalink System is a data management system that downloads instrument readings, calibration information and other data from Biosystems gas detectors and automatically stores them in a user-specified database as part of the gas detectors automatic calibration sequence. The system incorporates the Database Manager software for easy access to the data once it is downloaded from the instrument.



FEATURES

AUTOMATIC RECORD KEEPING

- Automatic download and storage of datalogger information in a specified database.
- Automatic tracking of instrument readings, calibration data, and sensor performance trends.
- Automatic instrument configuration with user defined templates.
- Direct connection between Instrument and PC

FLEXIBLE DATABASE MANAGEMENT SYSTEM.

- Easy access to stored records.
- Built-in report generator and e-mail capability.

LOW COST ALTERNATIVE TO THE IQ DOCKING STATION

- No need for controller and docks (only a PC connection is required).
- User performs calibration using the detector's built-in calibration routine. The instrument datalogger stores the results, which are then downloaded to the PC.
- Automatically maintains instrument calibration and service histories.

NETWORK CAPABLE

- Multiple IQ Datalinks on the same network.
- Data retrieval across network.

IQ Datalink Descriptions

PART NO.	DESCRIPTION
54-43-200	IQ DataLink software, installation disks and manuals. Supports PhD Lite, PhD5, PhD Ultra, MultiVision (Datalogging) and Cannonball3. Note communication hardware is not included.
54-43-201	IQ Database Manager software. Note this software is included with the IQ DataLink software package above.
54-43-202	IQ DataLink software with serial download cradle, installation disks and manuals. Same as P/N 54-43-200, but also includes PhD5 (PhD Ultra) charger and download cradle, with serial cable and power supply.
54-43-203	IQ DataLink software with IrDA (Serial), installation disks and manuals. Same as P/N 54-43-200, but also includes a Serial – IrDA communication device and download cradle. IrDA communication is required for PhD Lite, MultiVision (datalogging) and MultiPro.
54-43-204	IQ DataLink software with IrDA (USB), installation disks and manuals. Same as P/N 54-43-200, but also includes a Serial – IrDA communication device and download cradle. IrDA communication is required for PhD Lite, MultiVision (datalogging) and MultiPro.

Calibration Gases, Regulators and Replacement Sensors

Multi-Component Calibration Gas Mixtures

PART NUMBER	COMBUSTIBLE GAS	LEL	CO	H ₂ S	SHELF LIFE*	VOLUME
54-9041	Methane	50% LEL	50 ppm		5 years	103 liters
54-9043‡	Methane	50% LEL	50 ppm	25 ppm	1 year	58 liters
54-9042E	Propane Equivalent	50% LEL	50 ppm		5 years	103 liters
54-9045E†	Propane Equivalent	50% LEL	50 ppm		5 years	34 liters
54-9044E‡	Propane Equivalent	50% LEL	50 ppm	25 ppm	1 year	58 liters
54-9049E‡	Propane Equivalent	50% LEL	50 ppm	25 ppm	1 year	34 liters
54-9048E	Propane Equivalent	50% LEL		25 ppm	1 year	58 liters
54-9047E	Propane Equivalent	50% LEL		25 ppm	1 year	34 liters
54-9070E	Pentane Equivalent	50% LEL	50 ppm		5 years	103 liters
54-9046E	Pentane Equivalent	50% LEL	50 ppm	25 ppm	1 year	58 liters
54-9071E†	Pentane Equivalent	50% LEL	50 ppm		5 years	34 liters

† Only for use with 12-022 regulator.

‡ Not for use with CO+ or Tox1 sensors.

* Shelf Life figure is from date of manufacture.

Single Component Calibration Gas

PART NUMBER	GAS TYPE		CONCENTRATION	SHELF LIFE*	VOLUME
54-9031	LEL	Methane	50% LEL	5 Years	103 liters
54-9032E	LEL	Propane Equivalent	50% LEL	5 Years	103 liters
54-9068E	LEL	Pentane Equivalent	50% LEL	5 Years	103 liters
54-9066	LEL	Hydrogen (H ₂)	50% LEL	5 Years	103 liters
54-9033	CO	Carbon Monoxide	50 ppm	5 Years	103 liters
54-9036†	CO	Carbon Monoxide	50 ppm	5 Years	34 liters
54-9067	CO	Carbon Monoxide (Mighty-Tox series bump test only)	125 ppm	5 Years	103 liters
54-9034	H ₂ S	Hydrogen Sulfide	25 ppm	1 Year	58 liters
54-9057	H ₂ S	Hydrogen Sulfide	25 ppm	1 Year	34 liters
54-9037	SO ₂	Sulfur Dioxide	10 ppm	1 Year	58 liters
54-9058	SO ₂	Sulfur Dioxide	10 ppm	1 Year	34 liters
54-9051‡	NH ₃	Ammonia	50 ppm	1 Year	58 liters
54-9061‡	NH ₃	Ammonia	50 ppm	1 Year	34 liters

Continued on Page 32

† Only for use with 12-022 regulator.

‡ Only for use with 12-025 ammonia service regulator.

* Shelf Life figure is from date of manufacture.

Calibration Gases, Regulators and Replacement Sensors

Single Component Calibration Gas

PART NUMBER	GAS TYPE	CONCENTRATION	SHELF LIFE*	VOLUME	
54-9052	Cl ₂	Chlorine	5 ppm	8 Months	58 liters
54-9062	Cl ₂	Chlorine	5 ppm	8 Months	34 liters
54-9055	NO	Nitric Oxide	30 ppm	6 Months	58 liters
54-9063	NO	Nitric Oxide	30 ppm	6 Months	34 liters
54-9056	NO ₂	Nitrogen Dioxide	5 ppm	6 Months	58 liters
54-9059	NO ₂	Nitrogen Dioxide	5 ppm	6 Months	34 liters
54-9054	HCN	Hydrogen Cyanide	10 ppm	1 Year	58 liters
54-9053	HCl	Hydrogen Chloride	10 ppm	1 Year	58 liters
54-9065	PH ₃	Phosphine	5 ppm	6 Months	58 liters
54-9073	PH ₃	Phosphine	5 ppm	6 Months	34 liters
54-9064	H ₂	Hydrogen	100 ppm	5 Years	103 liters
54-9035	N ₂	Nitrogen	99.9%	5 Years	103 liters
54-9039	O ₂	Oxygen (Zero Air)	20.9%	5 Years	103 liters

† Only for use with 12-022 regulator.

‡ Only for use with 12-025 ammonia service regulator.

* Shelf Life figure is from date of manufacture.

Replacement Sensors

PART NUMBER	DESCRIPTION	PhD Plus	PhD Ultra
54-04-80	LEL Combusible Gas	•	•
54-04-90	O ₂ Oxygen	•	•
54-04-01	CO Carbon Monoxide	•	•
54-04-02	H ₂ S Hydrogen Sulfide	•	•
54-04-03	SO ₂ Sulfur Dioxide	•	•
54-04-04†	NH ₃ Ammonia	•	
54-04-05	CO+ Dual purpose CO/H ₂ S (provides a non-specific readout for CO and H ₂ S)	•	•
54-04-08†	Cl ₂ Chlorine	•	
54-04-09†	NO ₂ Nitrogen Dioxide	•	
54-04-10†	HCN Hydrogen Cyanide (special version of PhD Ultra required)	•	
54-04-12†	ClO ₂ Chlorine Dioxide	•	
54-04-13	PH ₃ Phosphine	•	

† Special reactive gas calibration adapter (54-05-A0409) required for proper calibration.

Regulators

PART NO.	DESCRIPTION
12-022	Regulator, 1.0 liter per minute flow. Only for use with 54-9036 54-9045E and 54-9071E calibration gas cylinders.
12-023	Regulator, standard service 1.0 liter per minute flow.
12-025	Regulator, ammonia service 1.0 liter per minute flow.
12-030	Regulator, standard service 1.0 liter per minute flow with on/off knob.
12-039	Demand flow regulator, standard service, 0 – 3 liters per minute flow.
35-0380	AirChek 3000 PSI Regulator. 1.0 liter per minute regulator with CGA346 hand-wheel coupling. Can be used in conjunction with a gas detector to conduct an air quality check on breathing air cylinders.

Series 3000 Replacement Sensors, Options and Accessories

PART NO.	DESCRIPTION
3101	Oxygen sensor for Model 3100.
3102	Remote Oxygen sensor for Model 3100R.
3301	Carbon monoxide sensor, CO for Models 3300 and 3300-TP.
3350	Compressed air sampling kit with fixed flow regulator. Rated 10 – 200 psig. Specify 3/8" Hansen "H" or 3/8" Schraeder "-S" male QD fitting when ordering.
35-179	Air sampling assembly (sensor/ calibration adapter and tubing).
35-043	Battery Eliminator (110 VAC).
35-197†	Relay Closure, simply closes a circuit upon alarm condition, rated at no more than 110 VAC and 1 amp service. Factory installation required, must be specified at time of purchase.
6050	High-intensity remote alarm (115 dBA @ 12") Includes mounting plate, 9V battery, test button, 6' of cable Not intrinsically safe; may not be used in potentially combustible environments.
55-025	Wall mounting plate for 3300-TP. Accepts monitor mounted bracket.

† Standard with 3300-TP

ZoneGuard

Fixed Point Gas Detection Systems

PRODUCT HIGHLIGHT:

Accurate and reliable fixed point system.



FEATURES

DESIGN

- Microprocessor-based controller.
- NEMA 4X fiberglass housing.
- Large LCD display.
- Integrally-mounted or remote sensors (up to 50').
- Remote sensor heads are available in explosion proof and non-explosion proof housing.
- One button operation including one button auto calibration.
- Extra RFI protection when using explosion proof remote sensor head.

ALARMS

- Bright alarm lights.
- Built-in mini siren.
- Programmable high and low alarms.
- Double pole double throw (DPDT) relays for each alarm condition.
- Optional integrally-mounted strobes.
- Optional external alarms.

STANDARD ACCESSORIES

- Calibration adapter with tubing.
- Installation and operators guide.

Note: conduit, wire and other components necessary to connect remotely located sensors with the instrument controller are not included.

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ZoneGuard Fixed Point Gas Detection Systems

ZoneGuard System Configuration

(Add option code letter to the part number.)

PART NUMBER	ZONEGUARD SENSOR INSTALLED		No Code	0	1
54-16-90	O ₂	Oxygen		•	•
54-16-80	LEL	Combustible			•
54-16-01	CO	Carbon Monoxide		•	•
54-16-02	H ₂ S	Hydrogen Sulfide		•	•
54-16-03	SO ₂	Sulfur Dioxide		•	•
54-16-08	Cl ₂	Chlorine		•	•
54-16-12	ClO ₂	Chlorine Dioxide		•	•
54-16-13	PH ₃	Phosphine		•	•
54-16-09	NO ₂	Nitrogen Dioxide		•	•

Integrally Mounted Sensor
Remote Sensor in Standard Housing
Remote Sensor in Explosion Proof Housing

Replacement Sensors for ZoneGuard and Gas Chek

PART NUMBER	DESCRIPTION	
54-15-801-S	LEL	Combustible
54-1631	O ₂	Oxygen
54-1632	H ₂ S	Hydrogen Sulfide
54-1634	CO	Carbon Monoxide
54-1635	Cl ₂	Chlorine
54-1636	SO ₂	Sulfur Dioxide
54-1637	NO ₂	Nitrogen Dioxide
54-1644	ClO ₂	Chlorine Dioxide

ZoneGuard Accessories

PART NO.	DESCRIPTION
54-17-A0101	Single integrally mounted external strobe for ZoneGuard (Red).
54-17-A0103	Single integrally mounted external strobe for ZoneGuard (Amber).
54-17-A0102	Dual integrally mounted external strobes for ZoneGuard (Red and Amber).
54-17-A0201	Remote programmable (volume adjustable) audible alarm.
54-17-A0202	Remote high intensity audible alarm.
54-17-A0301	Splash guard for sensors installed in explosion proof remote housings.
54-17-A0302	Splash guard for sensors installed in standard housings.
54-17-A0401	Wire, 22 gauge, 6 conductor, twisted pair, shielded with drain, used to connect Oxygen remote detectors with ZoneGuard controller, 50'.
54-17-A0402	Wire, 22 gauge, 4 conductor, twisted pair, shielded with drain, used to connect toxic remote detectors with ZoneGuard controller, 50'.
54-17-A0403	Wire, 18 gauge, 4 conductor, twisted pair, shielded with drain, used to connect combustible remote detectors with ZoneGuard controller, 50'.
54-17-A0310	ZoneGuard airline adapter (10-200 psig) with Hanson fitting.
35-0136	Calibration adapter for ZoneGuard and Gas Chek (Oxygen / standard toxic sensors).
54-17-A0304	Calibration adapter for ZoneGuard and Gas Chek (LEL sensors).
10-302	Calibration adapter for ZoneGuard and Gas Chek (Reactive gas sensors – Cl ₂ , ClO ₂).

Travelpanel and Airpanel 50

Air Purification Systems

PRODUCT HIGHLIGHT:

Pressure regulated filtration systems removes particulates, liquids, oils, mists and odors.



FEATURES

DESIGN

- 50 CFM (cubic feet per minute) of filtered air.
- 3 stage filtration systems removes particulates, liquids, oil mists and odors.
- Pressure regulated.
- Choice of 4 Hansen or 4 Schraeder quick disconnect outlets (3/8").
- 125 PSI pressure relief valve.

AIRPANEL 50

- Wall mounted.
- Optional high intensity alarm.
- Optional filter change indicator.
- Optional low pressure alarm.

CO MONITOR

- Includes CO monitor.
- Relay closure for high intensity alarm.
- Optional battery eliminator.

TRAVELPANEL 50R

- Easy portability.
- Viewing window allow operation while the case is closed, protecting it from the elements.
- Includes high intensity alarm (115dBA @ 12").
- Includes automatic filter change indicator.
- Rugged gasketed case.
- Built in outrigger braces keep the Travelpanel steady and upright during operation.
- Optional low pressure alarm.

The Gas Detector and High Intensity Alarm in the Airpanel and Travelpanel are not Intrinsically Safe and should not be used in areas classified as Hazardous Locations. Using the Gas Detector and High Intensity Alarm in areas classified as Hazardous Locations may result in serious personal injury including death.

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Travelpanel and Airpanel 50 Air Purification Systems

Travelpanel and Airpanel 50 Configuration

(Hansen Outlet)

PART NUMBER	DESCRIPTION
6100H	Travelpanel 50R (TP-50R includes high intensity audible alarm and filter change indicator).
6100HP	Travelpanel 50R, with low pressure alarm.
7000H	Airpanel 50 (AP 50s include battery eliminator, 110 VAC plug).
7000HF	Airpanel 50, with filter change indicator.
7000HA	Airpanel 50, with high intensity audible alarm.
7000HAF	Airpanel 50, with high intensity audible alarm and filter change indicator.
7000HAP	Airpanel 50, with high intensity audible alarm, low air pressure alarm.
7000HAFP	Airpanel 50, with high intensity audible alarm, filter change indicator, low air pressure alarm.

Travelpanel and Airpanel 50 Configuration

(Schraeder Outlet)

PART NUMBER	DESCRIPTION
6100S	Travelpanel 50R (TP-50R includes high intensity audible alarm and filter change indicator).
6100SP	Travelpanel 50R, with low pressure alarm.
7000S	Airpanel 50 (AP 50s include battery eliminator, 110 VAC plug).
7000SF	Airpanel 50, with filter change indicator.
7000SA	Airpanel 50, with high intensity audible alarm.
7000SAF	Airpanel 50, with high intensity audible alarm and filter change indicator.
7000SAP	Airpanel 50, with high intensity audible alarm, low air pressure alarm.
7000SAFP	Airpanel 50, with high intensity audible alarm, filter change indicator, low air pressure alarm.

Sample Probe



Biosystems sample probe assemblies include built-in moisture and particulate filters designed to remove contaminants which might otherwise harm either the instrument or (if equipped) the continuous sample pump. Particulate contaminants are removed particles as small as 1 μm . The hydrophobic filter includes a 0.1 μm Teflon™ barrier which blocks the flow of moisture as well as any remaining particulate contaminants.

Sample Probe Assemblies

PART NUMBER	EXTENSION	TUBE FITTING TYPE
54-05-A0403	Plastic	Standard barb fitting.
54-05-A0405	Stainless Steel	Standard barb fitting.
54-36-03	Plastic	Male quick disconnect (QD).
54-36-04	Stainless Steel	Male quick disconnect (QD).
54-36-05	Plastic	Threaded for quick disconnect. Intended as replacement where existing QD is reused.
54-36-06	Stainless Steel	Threaded for quick disconnect. Intended as replacement where existing QD is reused.

Never use a hand-aspirated sample draw kit or operate an instrument equipped with a sample draw pump unless the sample probe assembly is attached! Using a hand-aspirated sample draw kit or operating an instrument equipped with a sample draw pump without the sample probe assembly attached may result in serious personal injury including death.

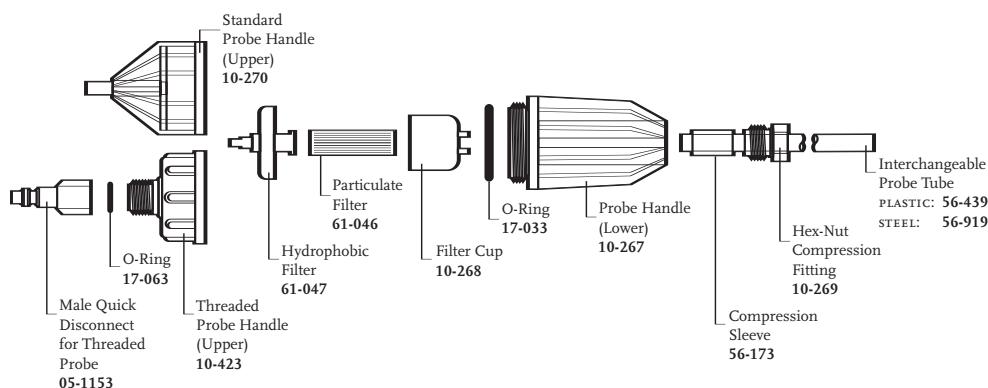
The probe extension is available in non-sparking plastic (12") or stainless steel (11.5").

The Biosystems probe assemblies are available with both standard barb fitting or quick disconnect fitting.

biosystems

No one makes it easier™

Sample Probe Assemblies and Components



Sample Probe Components

PART NUMBER	DESCRIPTION
10-270	Standard probe handle (upper)
61-047	Hydrophobic filter
10-268	Filter cup
10-267	Probe handle (lower)
10-269	Hex-nut compression fitting
17-063	O-ring
05-1153	Male quick disconnect for threaded probe
10-423	Threaded probe handle (upper)
61-046	Particulate filter
17-033	O-ring
56-173	Compression sleeve
56-439	Interchangeable probe tube, Plastic
56-919	Interchangeable probe tube, Steel

Sample Probe Filters and Tubing

PART NO.	DESCRIPTION
54-05-K0401	Filter replacement kit. 10 Particulate (61-046). 3 Hydrophobic (61-047) filters.
54-05-K0403	Economy filter replacement kit. 30 Particulate (61-046). 10 Hydrophobic (61-047) filters.
54-05-K0402	Economy filter replacement pack. 10 Particulate (61-046) filters.
54-05-K0405	Bulk filter replacement pack. 100 Particulate (61-046) filters.
54-05-K0404	Bulk filter replacement pack. 25 Hydrophobic (61-047) filters.
54-05-K0406	100 Hydrophobic filters.
54-05-K0407	500 Hydrophobic filters.
53-001	Polyurethane (fuel resistant) tubing $5/16$ " OD, $3/16$ " ID.
35-0344	Tubing kit for reactive gas detection (Cl_2 and ClO_2). Includes 10' of tubing plus adapters.

Internal Filters for Motorized Pumps

PART NO.	DESCRIPTION
54-05-K0101	Internal filter kit for PhD pumps. 10 particulate filters.
54-36-17	Internal filter kit for Cannonball3. 10 particulate, 5 hydrophobic filters.
35-0408	In-line cartridge filter for Cannonball3. 1 particulate filter.

PosiChek³

SCBA Performance Tester

PRODUCT HIGHLIGHT:

The PosiChek³ is used by thousands of fire departments, refineries, chemical plants, and nuclear power stations to positively verify that their SCBAs are fit for use. In fact, the PosiChek³ is the standard test bench for every major manufacturer of SCBA around the world.



FEATURES

- Computerized test bench, tests performance of any brand SCBA
- Tests Low Pressure (2216 psig) and High Pressure (4500 psig) units for:
 - Mask leakage
 - Exhalation check valve opening pressure
 - Static mask pressure
 - Bypass flow-rate
 - Pressure gauge accuracy
 - Low pressure alarm activation
 - First stage regulator performance
 - Breathing resistance at standard (40 LPM) and maximum (100 LPM) work rates
- **NEW!** Enhanced Precision (EP) High Pressure Transducer, provides more precise measurement of pressure within high-pressure manifold
- **NEW!** Sound Detection System (SDS) automates the primary audible alarm test
- 32-Bit software will operate on:
 - Windows® 98, ME, NT (version 4.0 SP5 or higher), 2000 or XP
 - Internet Explorer version 4.01 (SP2 or higher)
 - A minimum of 100 Mb of available space on the PC's hard drive
 - Parallel Port
 - CD-ROM Drive
- Custom software available from most SCBA manufacturers

IQ Express Descriptions

PART NO.	DESCRIPTION
54-20-1117-32	Low & High Pressure with Middle Stage Transducer, including Enhanced Precision (EP) Transducer and 32-Bit PosiChek ³ software
54-20-1117-32-L	PosiChek ³ (EP) with laptop computer package
54-20-1117-32-D	PosiChek ³ (EP) with desktop computer package
54-20-2117-32	Low & High Pressure with Middle Stage Transducer, including Enhanced Precision (EP) Transducer, Sound Detection System (SDS) and 32-Bit PosiChek ³ software
54-20-1117-32-L	PosiChek ³ (EP & SDS) with laptop computer package

Upgrade your existing PosiChek³

PART NO.	DESCRIPTION
54-21-A12	Enhanced Precision (EP) Transducer Upgrade
54-21-A13	Sound Detection System (SDS) Upgrade (Must have EP)
54-21-A14	EP and SDS Upgrade

Accessories and extended warranty options available

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